

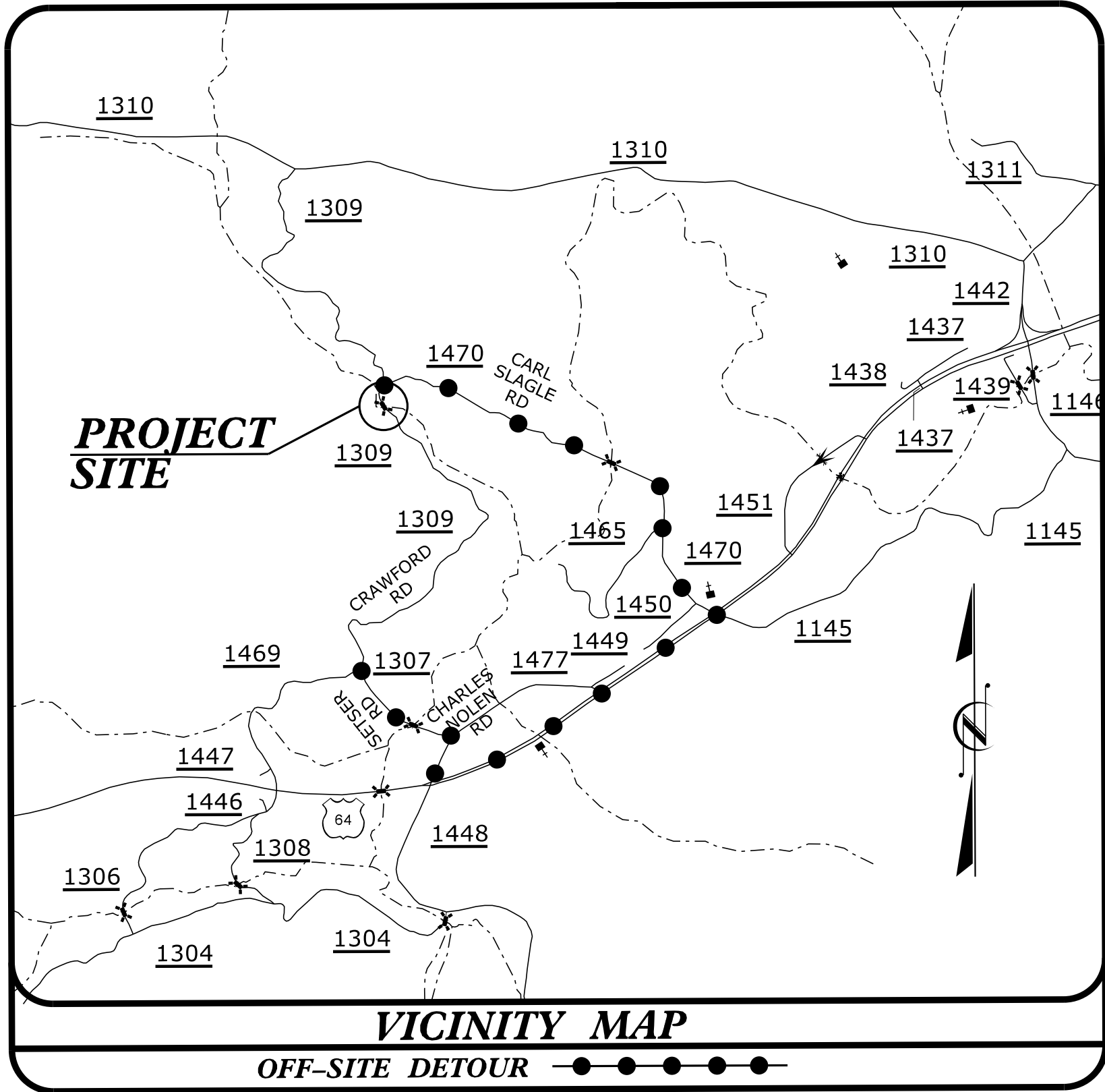
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TIP PROJECT: B-4775

CONTRACT: DN00564



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

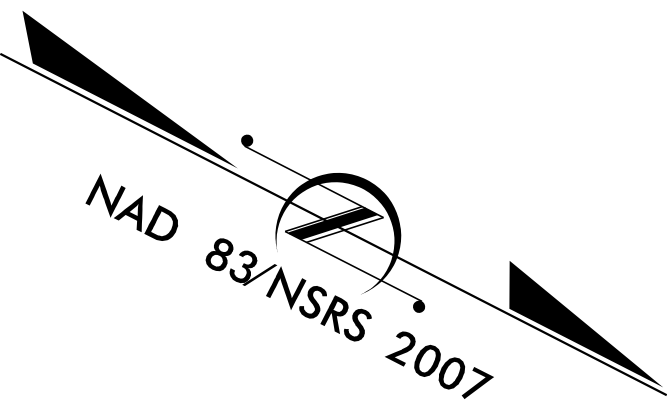
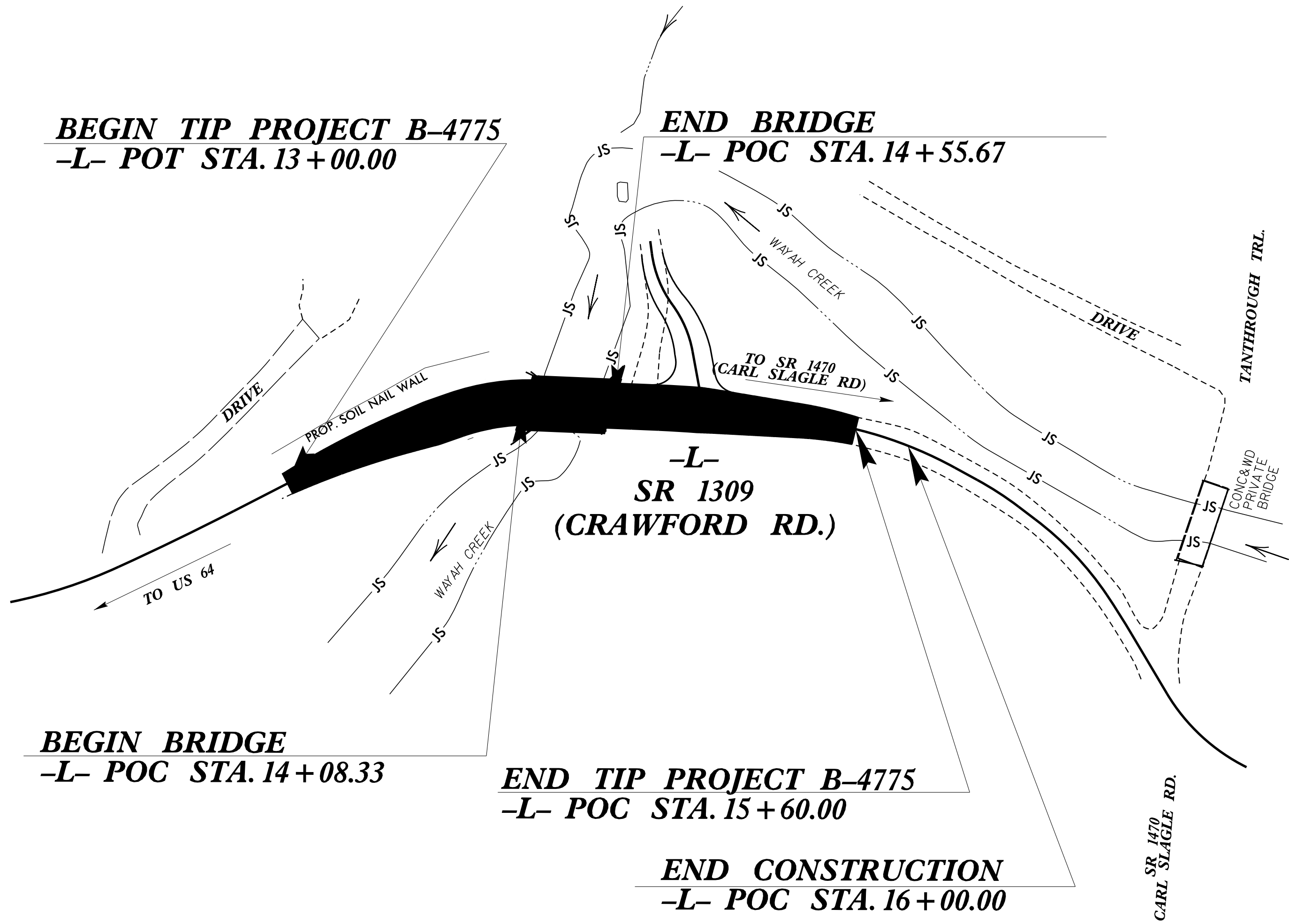
MACON COUNTY

LOCATION: BRIDGE NO.17 OVER WAYAH CREEK ON  
SR 1309 (CRAWFORD RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4775		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38546.1.1	BRZ-1309(8)	PE	
38546.1.1	BRZ-1309(8)	ROW/UTIL.	

BRIDGE #17



STRUCTURE PLANS

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

DESIGN DATA

ADT 2016 = 110

T = 6 % \*

V = 25 MPH

\* TTST = 3% DUAL = 3%

FUNC. CLASS = LOCAL  
(SUBREGIONAL)

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4775 = 0.040 MILES  
LENGTH STRUCTURE PROJECT B-4775 = 0.009 MILES

TOTAL LENGTH TIP PROJECT B-4775 = 0.049MILES

Prepared in the Office of:  
**WETHERILL ENGINEERING**  
1223 Jones Franklin Rd., Raleigh, N.C. 27606  
License No. F-0377  
Bus: 919.851.8077 Fax: 919.851.8107

2018 STANDARD SPECIFICATIONS

LETTING DATE:  
2018

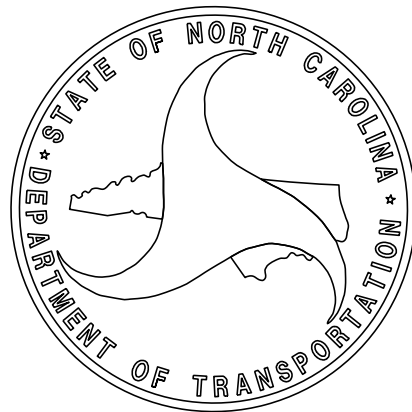
NCDOT CONTACT:

Prepared for:  
**DIVISION OF HIGHWAYS  
DIVISION 14**  
253 Webster Road,  
Sylva, NC 28801

**EDWARD G. WETHERILL, PE**  
PROJECT ENGINEER

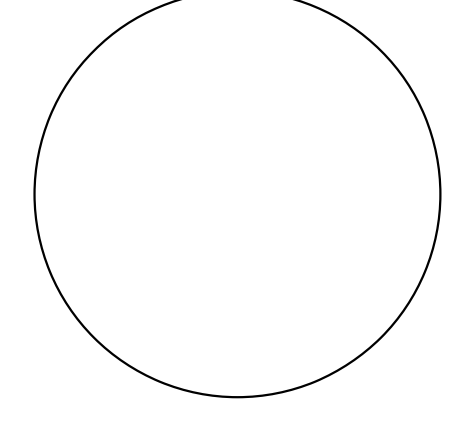
**B.C. HUNT, P.E.**  
PROJECT DESIGN ENGINEER

**JOSH DEYTON, PE**  
DIVISION 14 BRIDGE PROGRAM MANAGER



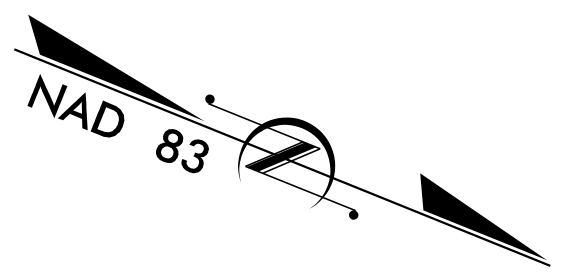
F.A. PROJ. NO: BRZ-1309(8)

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS



HYDRAULIC DATA	
DESIGN DISCHARGE-----	1500 CFS
FREQUENCY OF DESIGN FLOOD-----	5 YR.
DESIGN HIGH WATER ELEVATION----	2175.10
DRAINAGE AREA-----	13.8 SQ. MI.
BASE DISCHARGE (Q100 )-----	3700 CFS
BASE HIGH WATER ELEVATION-----	2178.50
OVERTOPPING FLOOD DATA	
OVERTOPPING DISCHARGE-----	1575 CFS
FREQUENCY OF OVERTOPPING FLOOD--	5± YRS.
OVERTOPPING FLOOD ELEVATION----	2177.30
OVERTOPPING OCCURS AT STA.15+60.00 -L-	

LOW CHORD ELEVATIONS	
	ELEVATION @ C. BRG. RT. SIDE
END BENT 1	2175.70
END BENT 2	2175.19



PROJECT NO. B-4775  
MACON COUNTY  
STATION: 14+32.00 -L-

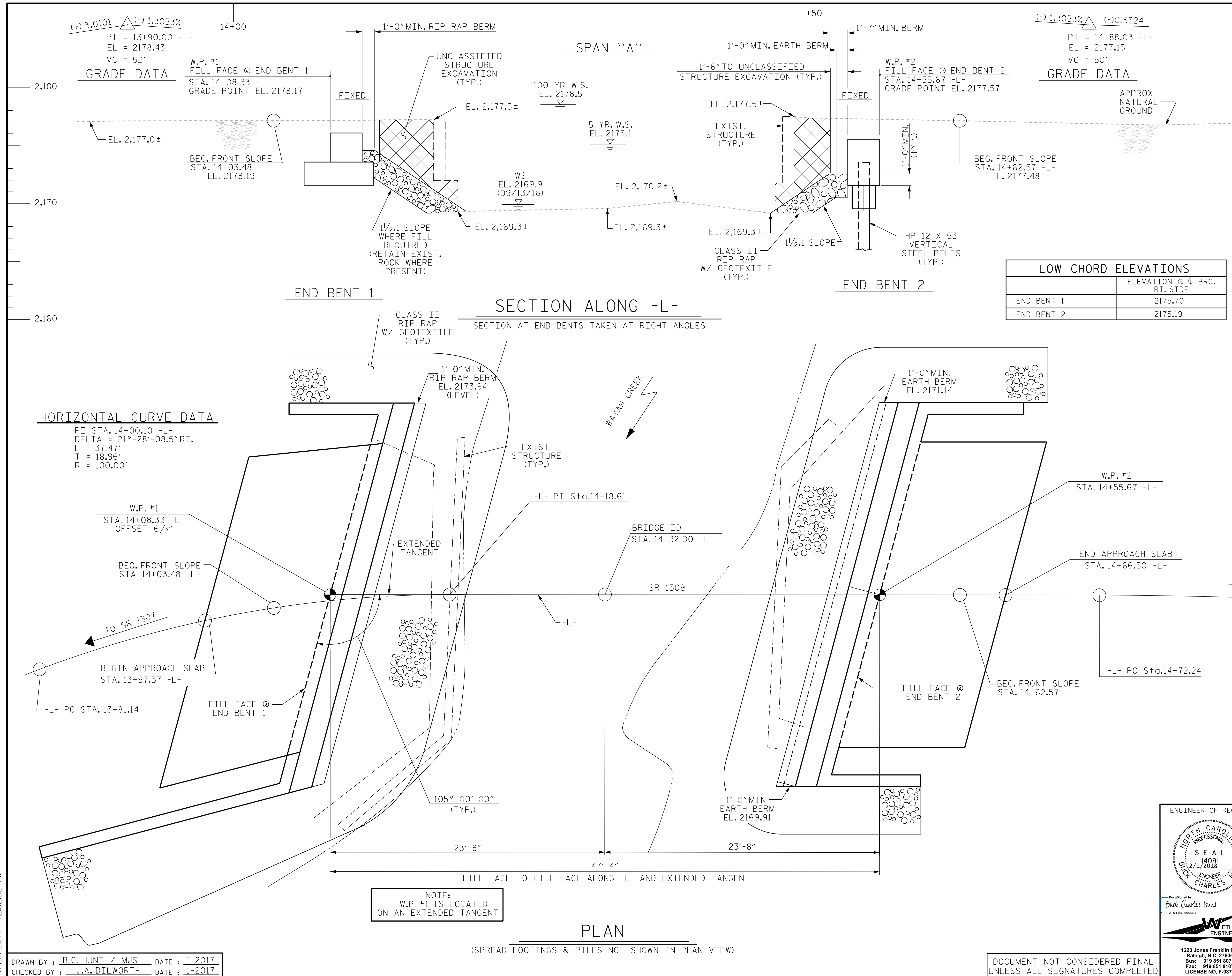
SHEET 1 OF 2 REPLACES BRIDGE NO.17

ENGINEER OF RECORD

Decommissioned by: *Brick Charles Hunt*  
919.851.8077  
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Fax: 919.851.8107  
LICENSE NO. F-0377

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-1
2			4			
TOTAL SHEETS						18

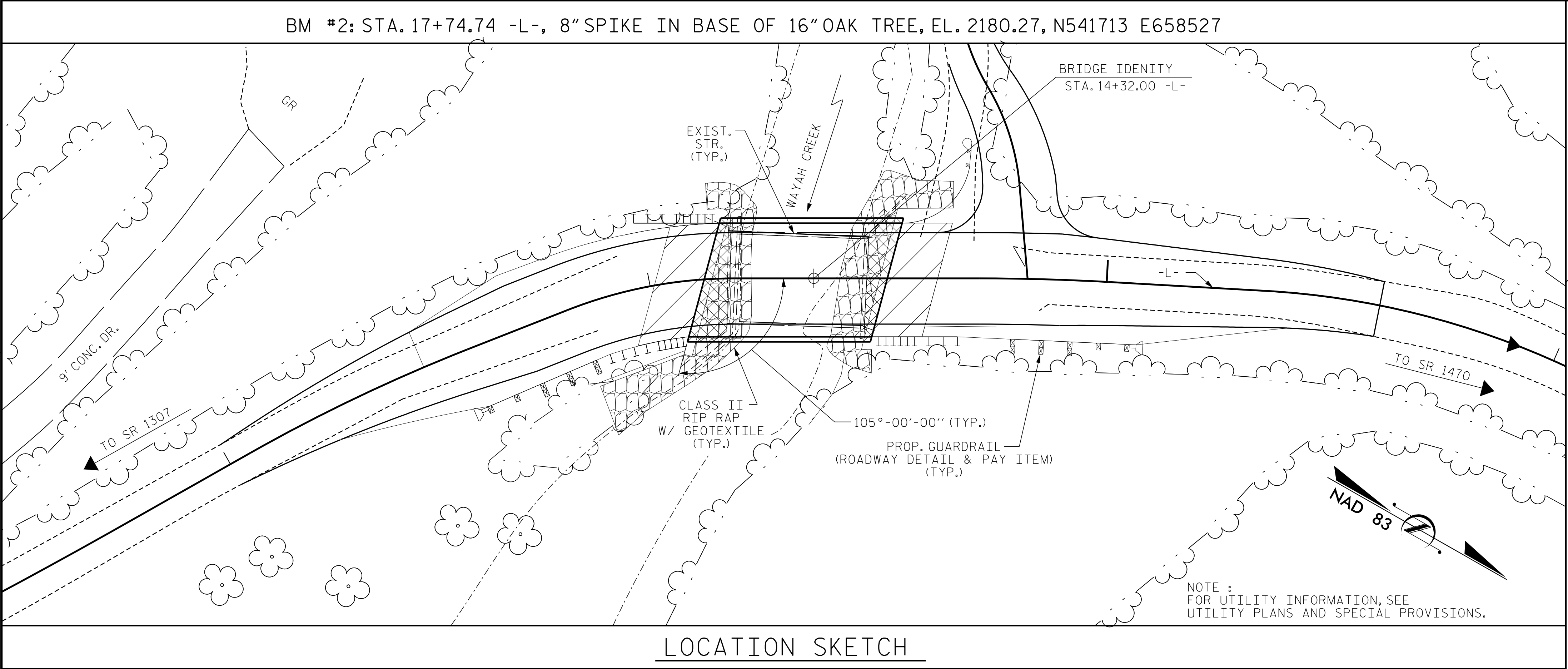
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DRAWN BY : B.C. HUNT / MJS DATE : 1-2017  
CHECKED BY : J.A. DILWORTH DATE : 1-2017

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NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 13+38.00 -L-."

THE MATERIAL SHOWN IN THE HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 30 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 30'-6" AND A CLEAR ROADWAY WIDTH OF 19'-1", A TIMBER DECK COVERED WITH ASPHALT, AND SUPPORTED BY STEEL I BEAMS AND A SUBSTRUCTURE OF TIMPER CAPS AND POSTS ON CONCRETE FOOTINGS SHALL BE REMOVED.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18 - EVALUATING SCOUR AT BRIDGES".

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL																		
	REMOVAL OF EXISTING STRUCTURE	FOUNDATION EXCAVATION FOR END BENT	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		PILE REDRIVES	STEEL PILE POINTS	PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 1'-9" PRESTRESSED CONCRETE CORED SLABS		ASBESTOS ASSESSMENT
	LUMP SUM	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	EACH	EACH	EACH	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.	LUMP SUM
SUPERSTRUCTURE												90.00			LUMP SUM	9	405.00	
END BENT 1		LUMP SUM		28.6		4,703							60	65				
END BENT 2				19.3		2,326	5	100	3	5	5		45	50				
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	47.9	LUMP SUM	7,029	5	100	3	5	5	90.00	105	115	LUMP SUM	9	405.00	LUMP SUM

FOUNDATION NOTES:

THE SPREAD FOOTINGS AT END BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 9 TSF. CHECK FIELD CONDITIONS FOR THE REQUIRED RESISTANCE OF 20 TSF JUST BEFORE PLACING CONCRETE.

KEY IN SPREAD FOOTINGS AT END BENT NO.1 AT LEAST 12" INTO ROCK WITH MINIMUM THICKNESS AS SHOWN ON THE PLANS.

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 70 TONS PER PILE.

DRIVE PILES AT END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE.

STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO.2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 12,000 TO 25,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT NO.2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDINCAE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

DRAWN BY : B.C. HUNT / MJS DATE : 1-2017  
CHECKED BY : J.A. DILWORTH DATE : 1-2017

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

ENGINEER OF RECORD

Drawn/signed by  
Eric Charles Hunt  
2/16/2018/BAEC

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Raleigh, N.C. 27606  
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LICENSE NO. F-0377

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

GENERAL DRAWING  
BRIDGE ON SR 1309  
OVER WAYAH CREEK  
BETWEEN SR 1307 AND SR 1470

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-2 TOTAL SHEETS 18
2			4			

PROJECT NO. B-4775  
MACON COUNTY  
STATION: 14+32.00 -L-

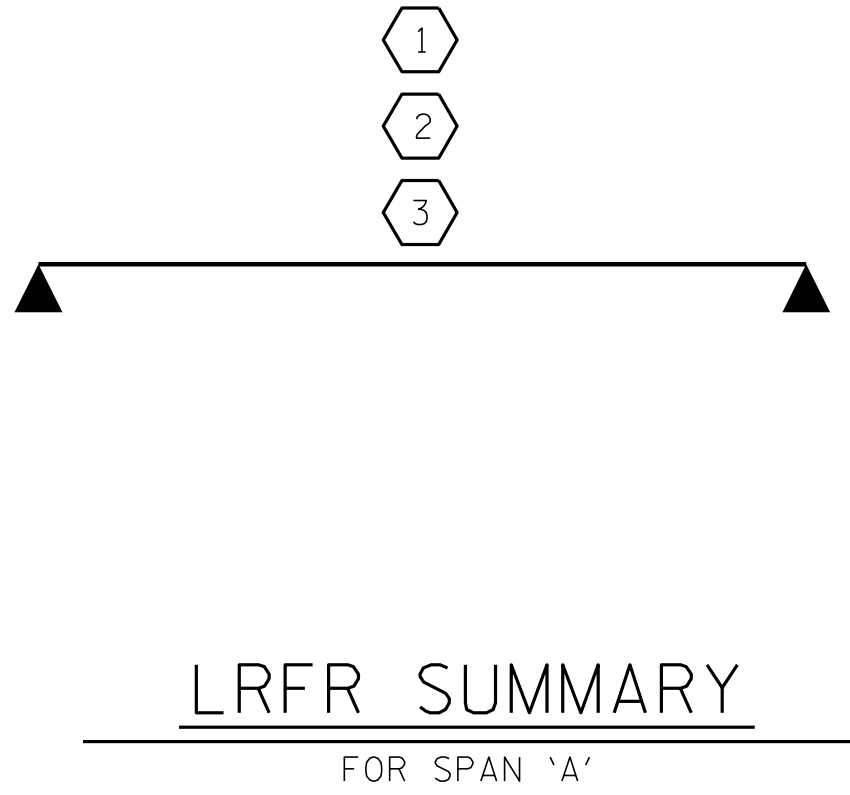
SHEET 2 OF 2



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LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																								
LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER		
						LIVELOAD FACTORS	MOMENT					SHEAR					LIVELOAD FACTORS	MOMENT						
							DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.098	--	1.75	0.272	1.36	45'	EL	21.982	0.617	1.46	45'	EL	35.172	0.80	0.272	1.10	45'	EL	21.982		
	HL-93(0pr)	N/A	--	1.764	--	1.35	0.272	1.76	45'	EL	21.982	0.617	1.89	45'	EL	35.172	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.347	48.507	1.75	0.272	1.67	45'	EL	21.982	0.617	1.68	45'	EL	8.793	0.80	0.272	1.35	45'	EL	21.982		
	HS-20(0pr)	36.000	--	2.165	77.938	1.35	0.272	2.16	45'	EL	21.982	0.617	2.17	45'	EL	8.793	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.632	35.536	1.4	0.272	4.08	45'	EL	21.982	0.617	4.43	45'	EL	35.172	0.80	0.272	2.63	45'	EL	21.982	
		SNGARBS2	20.000	--	2.126	42.513	1.4	0.272	3.29	45'	EL	21.982	0.617	3.32	45'	EL	35.172	0.80	0.272	2.13	45'	EL	21.982	
		SNAGRIS2	22.000	--	2.085	45.877	1.4	0.272	3.19	45'	EL	17.586	0.617	3.15	45'	EL	35.172	0.80	0.272	2.09	45'	EL	21.982	
		SNCOTTS3	27.250	--	1.314	35.814	1.4	0.272	2.04	45'	EL	21.982	0.617	2.23	45'	EL	8.793	0.80	0.272	1.31	45'	EL	21.982	
		SNAGGRS4	34.925	--	1.16	40.51	1.4	0.272	1.8	45'	EL	21.982	0.617	1.97	45'	EL	35.172	0.80	0.272	1.16	45'	EL	21.982	
		SNS5A	35.550	--	1.13	40.167	1.4	0.272	1.75	45'	EL	21.982	0.617	2.06	45'	EL	8.793	0.80	0.272	1.13	45'	EL	21.982	
		SNS6A	39.950	--	1.064	42.522	1.4	0.272	1.65	45'	EL	21.982	0.617	1.94	45'	EL	35.172	0.80	0.272	1.06	45'	EL	21.982	
		SNS7B	42.000	3	1.015	42.617	1.4	0.272	1.57	45'	EL	21.982	0.617	1.98	45'	EL	35.172	0.80	0.272	1.01	45'	EL	21.982	
	TTST	TNAGRIT3	33.000	--	1.306	43.112	1.4	0.272	2.02	45'	EL	21.982	0.617	2.26	45'	EL	8.793	0.80	0.272	1.31	45'	EL	21.982	
		TNT4A	33.075	--	1.32	43.663	1.4	0.272	2.05	45'	EL	21.982	0.617	2.14	45'	EL	35.172	0.80	0.272	1.32	45'	EL	21.982	
		TNT6A	41.600	--	1.108	46.093	1.4	0.272	1.72	45'	EL	21.982	0.617	2.11	45'	EL	35.172	0.80	0.272	1.11	45'	EL	21.982	
		TNT7A	42.000	--	1.129	47.436	1.4	0.272	1.75	45'	EL	21.982	0.617	1.96	45'	EL	35.172	0.80	0.272	1.13	45'	EL	21.982	
		TNT7B	42.000	--	1.176	49.384	1.4	0.272	1.82	45'	EL	21.982	0.617	1.88	45'	EL	35.172	0.80	0.272	1.18	45'	EL	21.982	
		TNAGRIT4	43.000	--	1.12	48.157	1.4	0.272	1.74	45'	EL	21.982	0.617	1.8	45'	EL	35.172	0.80	0.272	1.12	45'	EL	21.982	
		TNAGT5A	45.000	--	1.042	46.893	1.4	0.272	1.61	45'	EL	21.982	0.617	1.88	45'	EL	35.172	0.80	0.272	1.04	45'	EL	21.982	
		TNAGT5B	45.000	--	1.017	45.785	1.4	0.272	1.58	45'	EL	21.982	0.617	1.7	45'	EL	35.172	0.80	0.272	1.02	45'	EL	21.982	



LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	$\gamma_{DC}$	$\gamma_{DW}$
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

- 
- 
- 
- 

# CONTROLLING LOAD RATING

1

DESIGN LOAD RATING (HL-93)

2

DESIGN LOAD RATING (HS-20)

3

LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER  
 EL - EXTERIOR LEFT GIRDER  
 ER - EXTERIOR RIGHT GIRDER

PROJECT NO. B-4775

MACON COUNTY

STATION: 14+32.00 -L-

ASSEMBLED BY : J. PENDERGRAFT	DATE : 1-17
CHECKED BY : J. DILWORTH	DATE : 1-17
DRAWN BY : CVC	6/10
CHECKED BY : DNS	6/10

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ENGINEER OF RECORD

Decommissioned by

Ende Charles Hunt

2F18C88078BAE6C

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Raleigh, N.C. 27606

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LICENSE NO. F-0377

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

STANDARD

LRFR SUMMARY FOR

45' CORED SLAB UNIT

105° SKEW

(NON-INTERSTATE TRAFFIC)

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

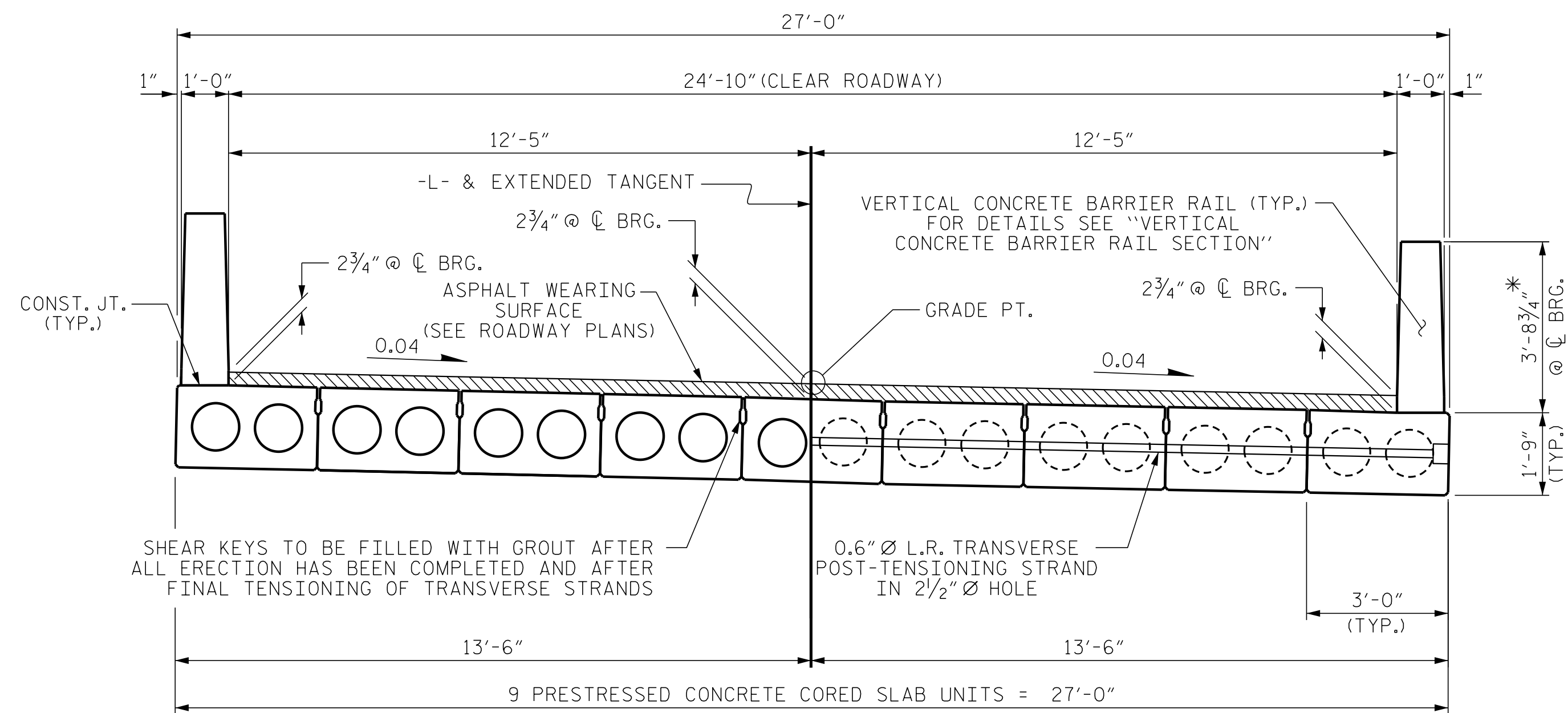
SHEET NO.

S-3

TOTAL SHEETS

18

STD. NO. 21LRFR1-75&105S-45L

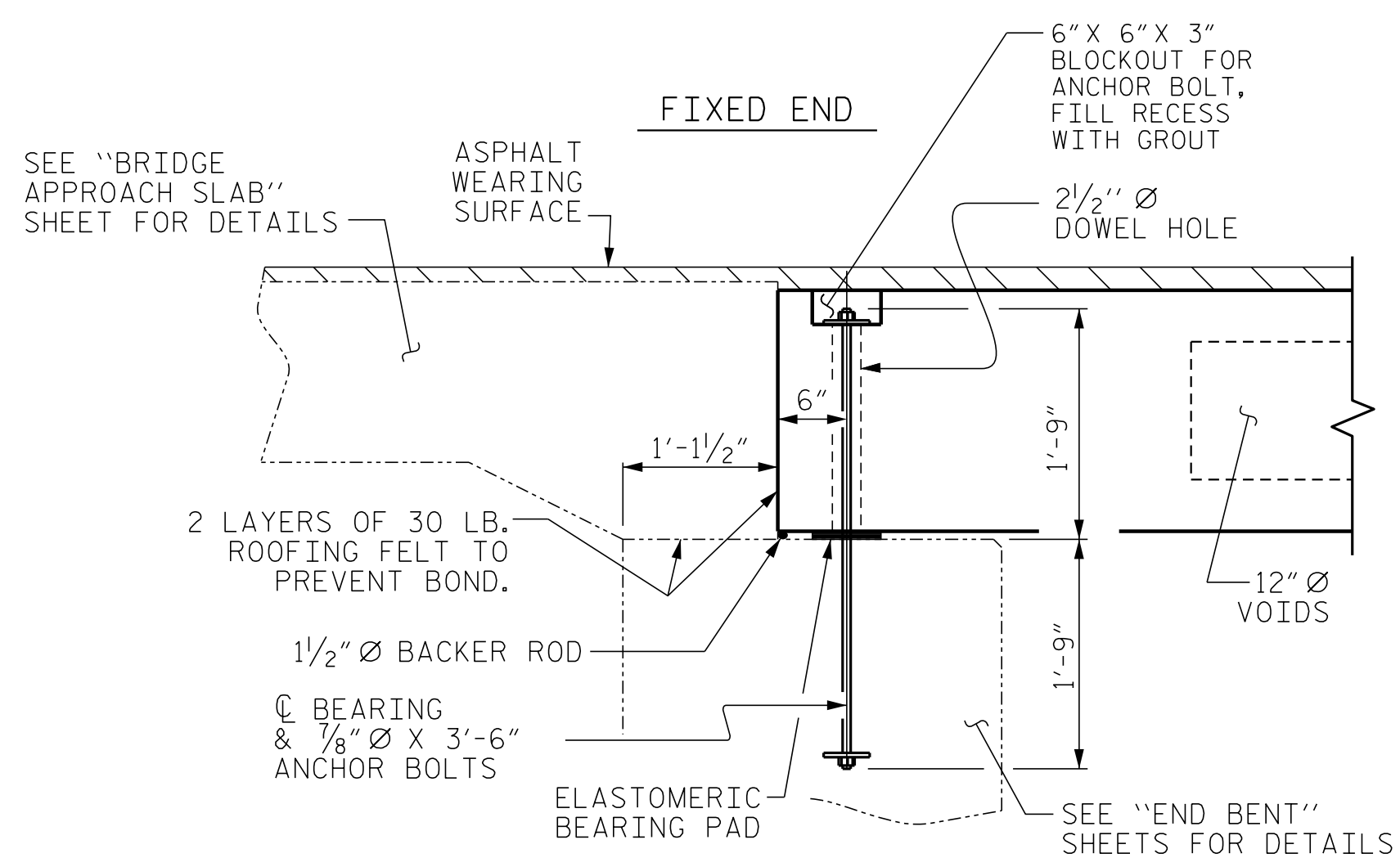


HALF SECTION  
THROUGH VOIDS

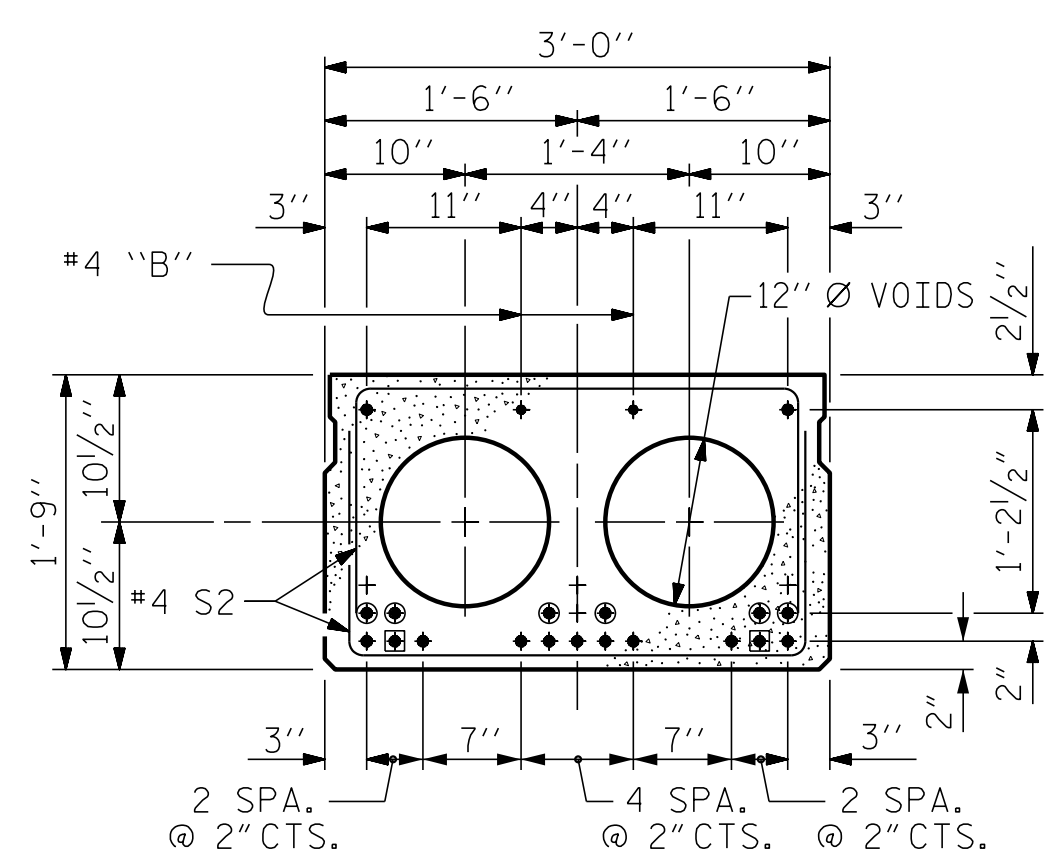
HALF SECTION  
AT INTERMEDIATE DIAPHRAGMS

## TYPICAL SECTION

\* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

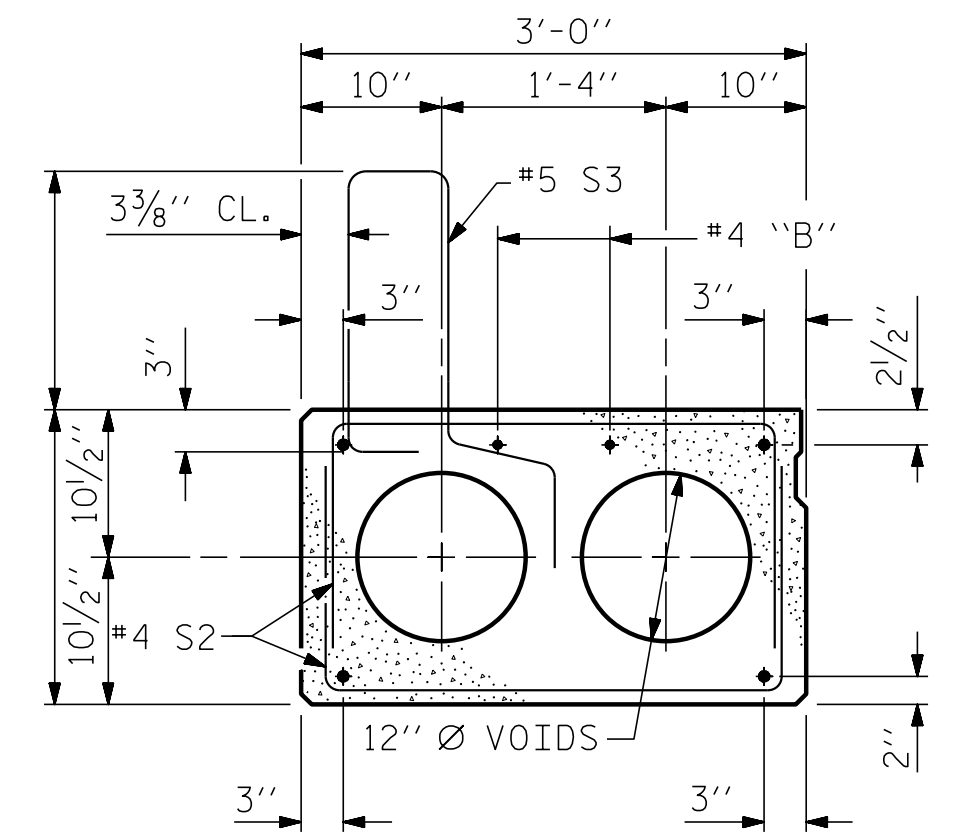


SECTION AT END BENT



INTERIOR SLAB SECTION  
(45' UNIT)  
(13 STRANDS REQUIRED)

0.6" Ø LOW  
RELAXATION STRAND LAYOUT

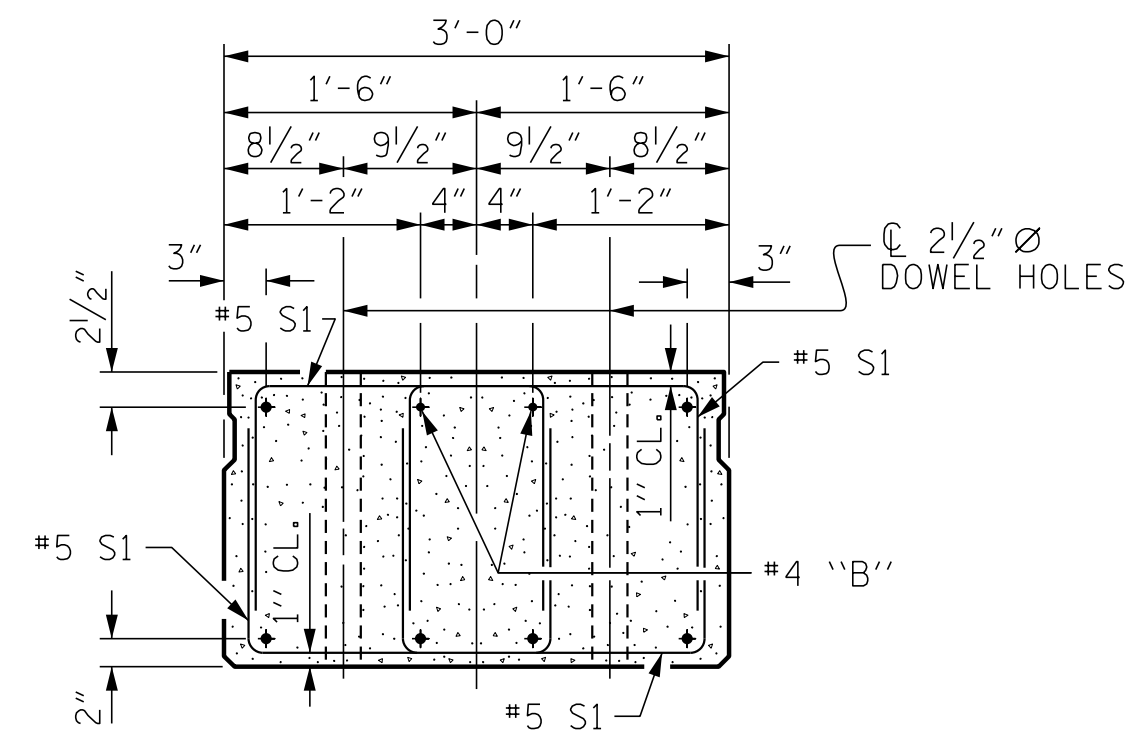


EXT. SLAB SECTION

(FOR PRESTRESSED STRAND LAYOUT, SEE  
INTERIOR SLAB SECTION.)

- ☐ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- ☉ OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED, IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

## DEBONDING LEGEND


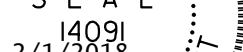


END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS  
AND LOCATION OF DOWEL HOLES.  
(STRAND LAYOUT NOT SHOWN.)  
INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB  
UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.

PROJECT NO. B-4775  
MACON COUNTY  
 STATION: 14+32.00 -L-

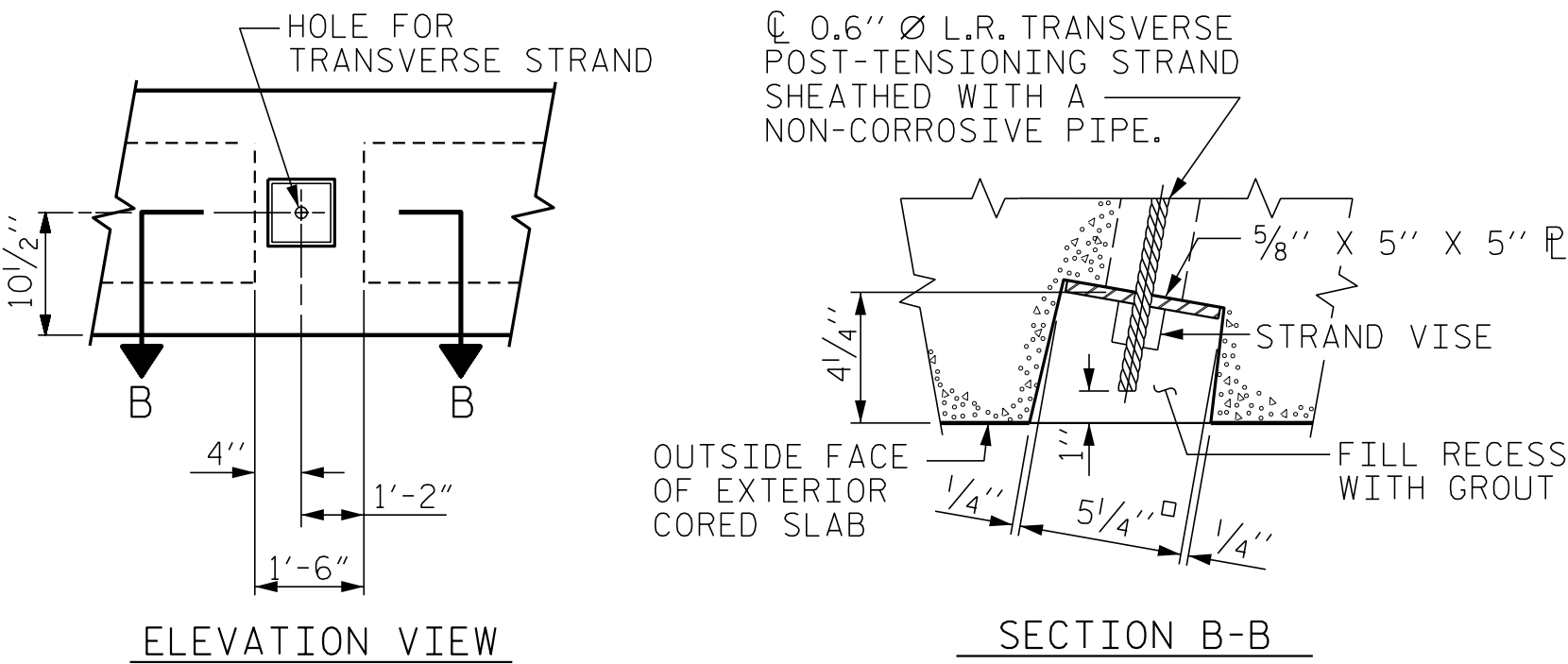
SHEET 1 OF 4

<p>ENGINEER OF RECORD</p> <div style="text-align: center;">  </div> <p>Downloaded by: <i>Eric Charles Hunt</i> 2F15C3978BA4EC</p> <div style="text-align: center;">  <p><b>VW ENGINEERING</b></p> </div> <p>1223 Jones Franklin Rd. Raleigh, N.C. 27608 Bus: 919 851 8077 Fax: 919 851 6107 LICENSE NO. F-0377</p>	<p style="text-align: center;">STATE OF NORTH CAROLINA</p> <p style="text-align: center; font-size: 1.2em;">DEPARTMENT OF TRANSPORTATION</p> <p style="text-align: center;">RALEIGH</p> <p style="text-align: center; font-size: 1.5em; margin-top: 20px;">STANDARD</p> <p style="text-align: center; font-size: 2em; margin-top: 10px;">3'-0" X 1'-9"</p> <p style="text-align: center; font-size: 1.8em;">PRESTRESSED CONCRETE</p> <p style="text-align: center; font-size: 1.8em;">CORED SLAB UNIT</p> <p style="text-align: center; font-size: 2.5em; margin-top: 10px;">105° SKEW</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 20px;"> <tr> <th colspan="6" style="text-align: center;">REVISIONS</th> <th style="text-align: center;">SHEET NO.</th> </tr> <tr> <th style="width: 10%;">NO.</th> <th style="width: 10%;">BY:</th> <th style="width: 20%;">DATE:</th> <th style="width: 10%;">NO.</th> <th style="width: 10%;">BY:</th> <th style="width: 20%;">DATE:</th> <th rowspan="3" style="text-align: center; vertical-align: middle;"> <div style="border: 1px solid black; padding: 5px; width: 100px; margin: 0 auto;"> TOTAL SHEETS 18 </div> </th> </tr> <tr> <td style="text-align: center;">1</td> <td></td> <td></td> <td style="text-align: center;">3</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td></td> <td></td> <td style="text-align: center;">4</td> <td></td> <td></td> </tr> </table>	REVISIONS						SHEET NO.	NO.	BY:	DATE:	NO.	BY:	DATE:	<div style="border: 1px solid black; padding: 5px; width: 100px; margin: 0 auto;"> TOTAL SHEETS 18 </div>	1			3			2			4		
REVISIONS						SHEET NO.																					
NO.	BY:	DATE:	NO.	BY:	DATE:	<div style="border: 1px solid black; padding: 5px; width: 100px; margin: 0 auto;"> TOTAL SHEETS 18 </div>																					
1			3																								
2			4																								

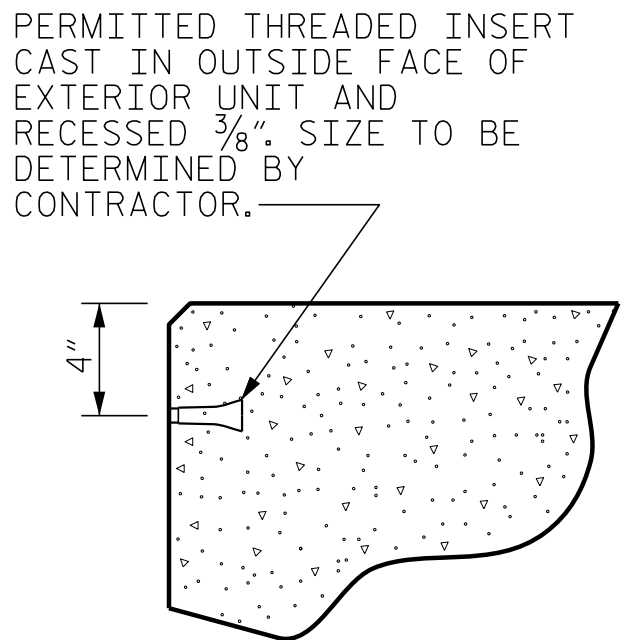
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UNLESS ALL SIGNATURES COMPLETED

STD. NO. 21" PCS2\_27\_105S

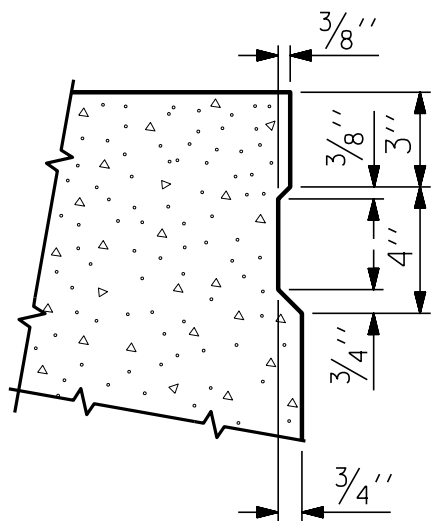




GROUTED RECESS AT END OF POST-TENSIONED STRAND OF CORED SLABS



THREADED INSERT DETAIL

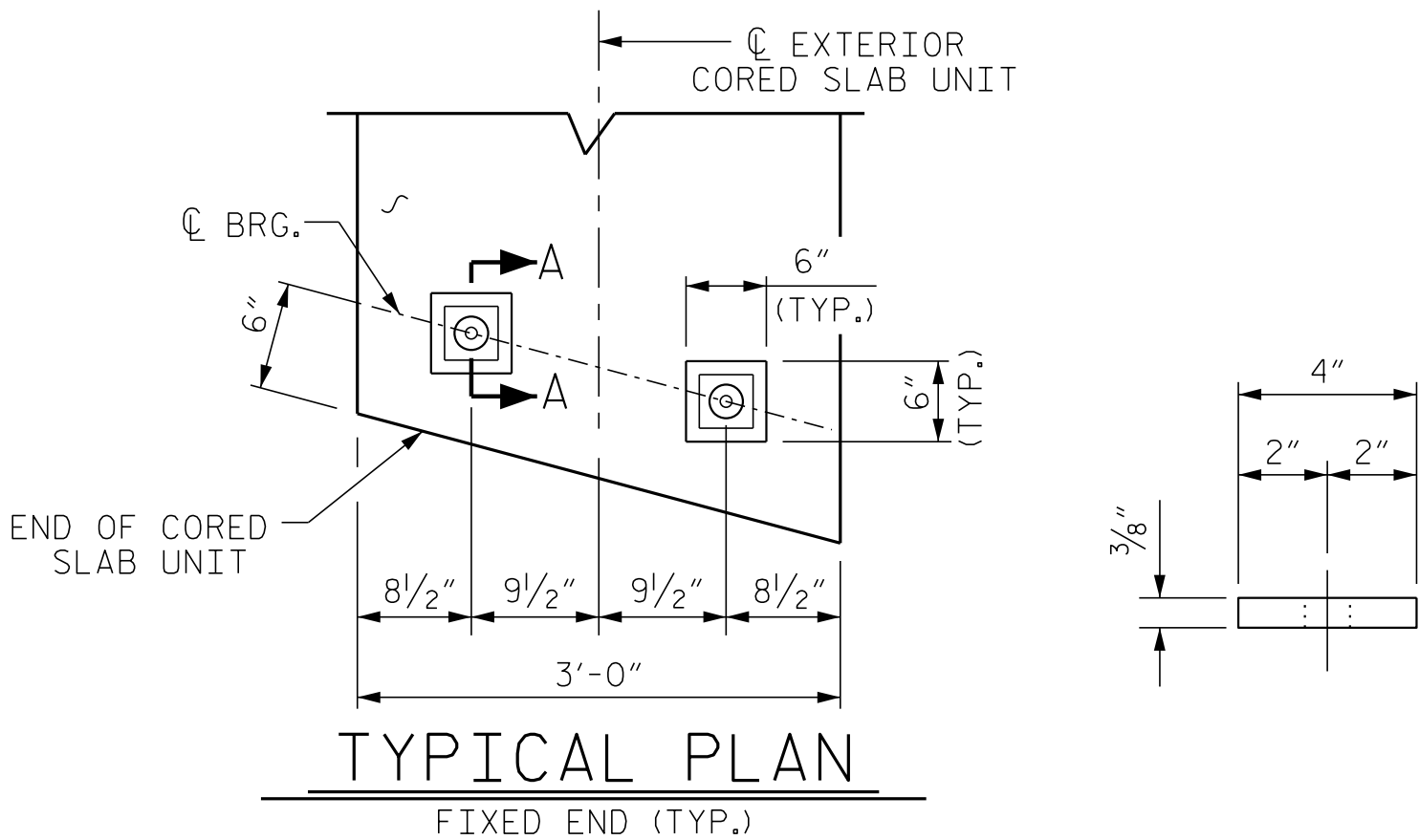


SHEAR KEY DETAIL

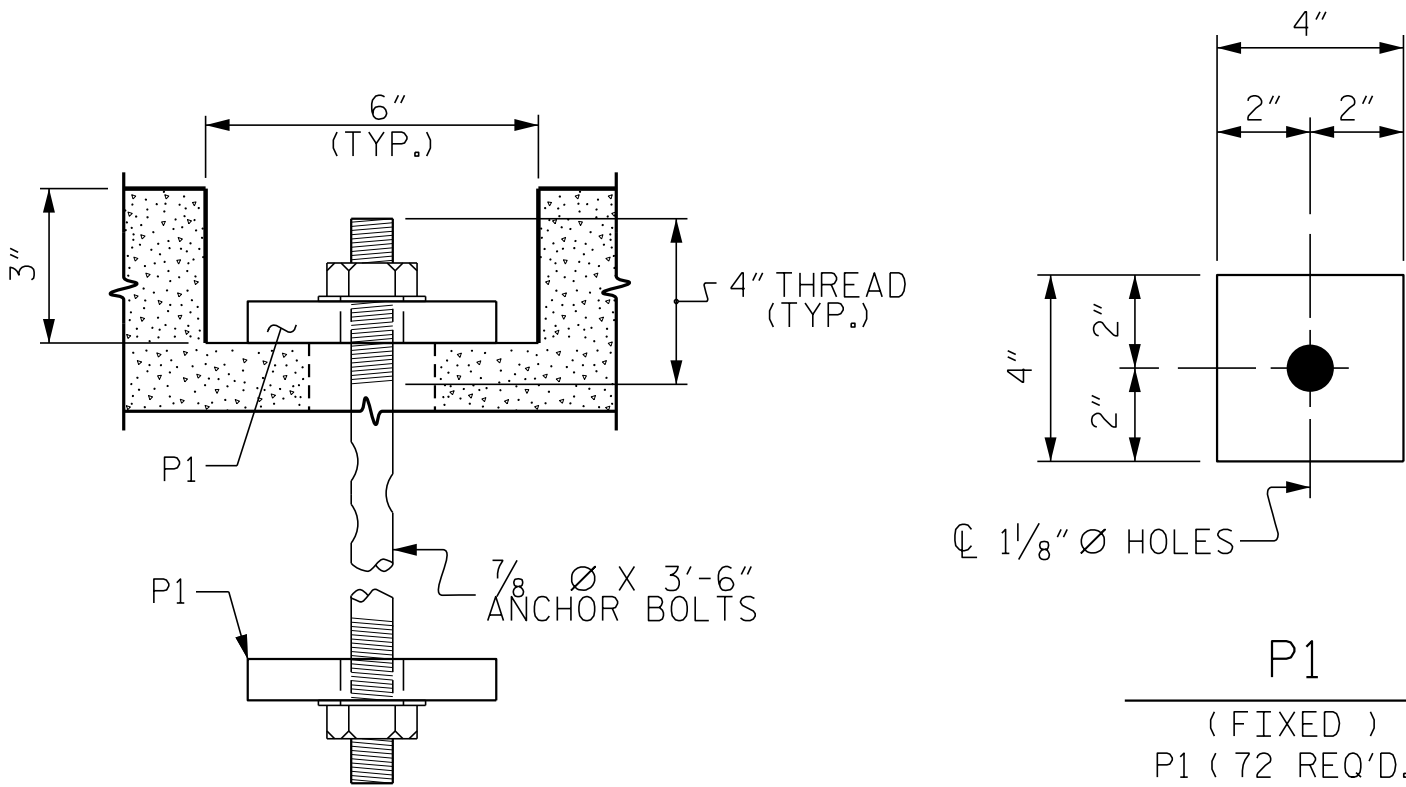
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

NOTES:

7/8" Ø ANCHOR BOLTS, NUTS, AND PLATE WASHERS FOR CORED SLAB UNITS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.



TYPICAL PLAN



SECTION A-A

PLATE DETAILS

BLOCKOUT DETAIL FOR ANCHOR BOLTS

PROJECT NO. B-4775  
MACON COUNTY  
STATION: 14+32.00 -L-

SHEET 2 OF 4

ENGINEER OF RECORD

DocuSigned by  
*Ende Charles Hunt*  
2f16c39078a6ec

1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
Bus: 919 851 8077  
Fax: 919 851 8107  
LICENSE NO. F-0377

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

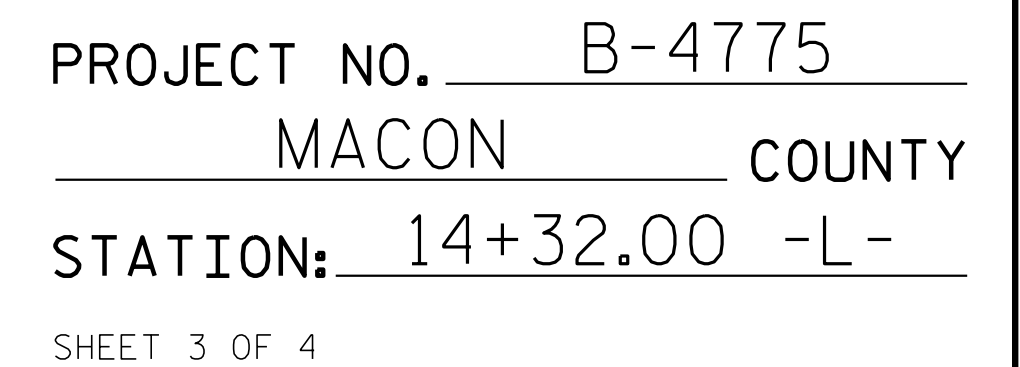
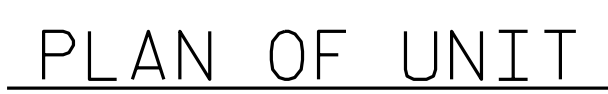
STANDARD  
3'-0" X 1'-9"  
PRESTRESSED CONCRETE  
CORED SLAB UNIT  
105° SKEW

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

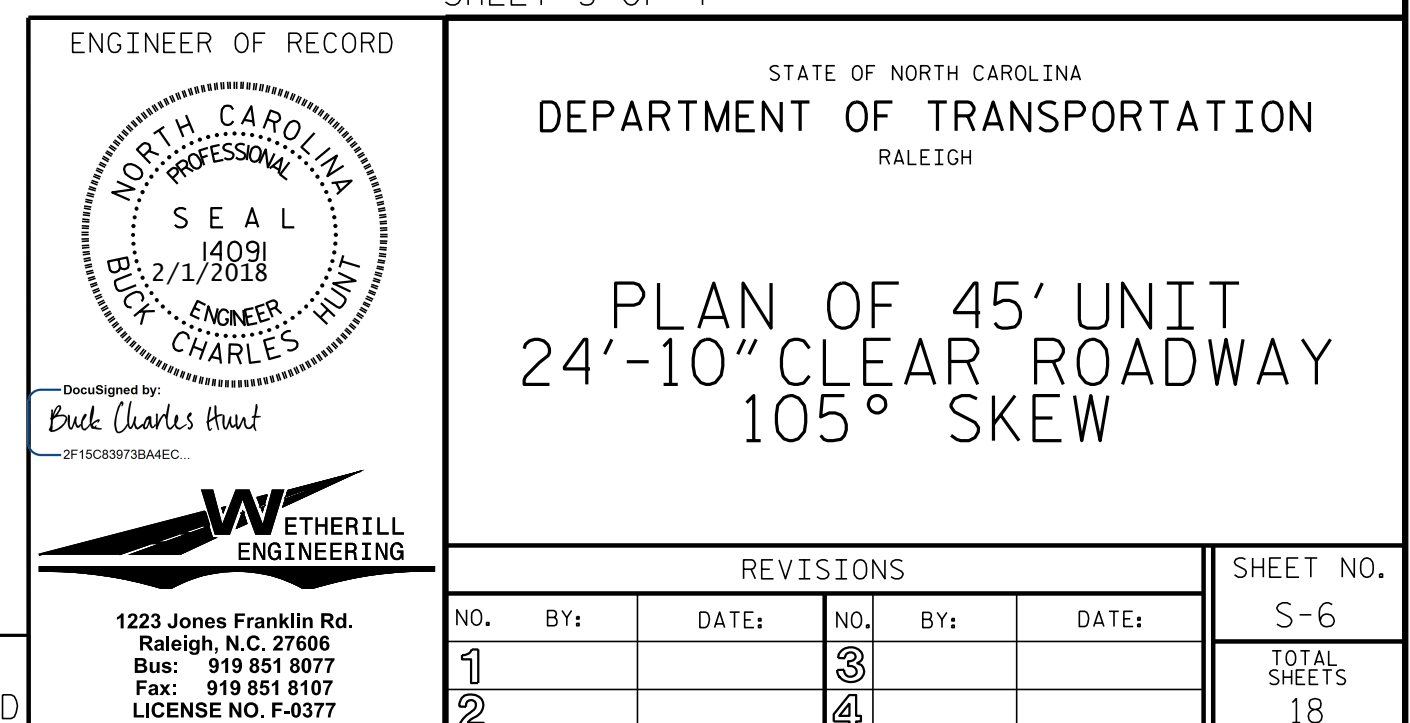
SHEET NO.  
S-5  
TOTAL SHEETS  
18

DRAWN BY : J. PENDERGRAFT DATE : 1-17  
CHECKED BY : B.C. HUNT DATE : 4-17

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UNLESS ALL SIGNATURES COMPLETED



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UNLESS ALL SIGNATURES COMPLETED







NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

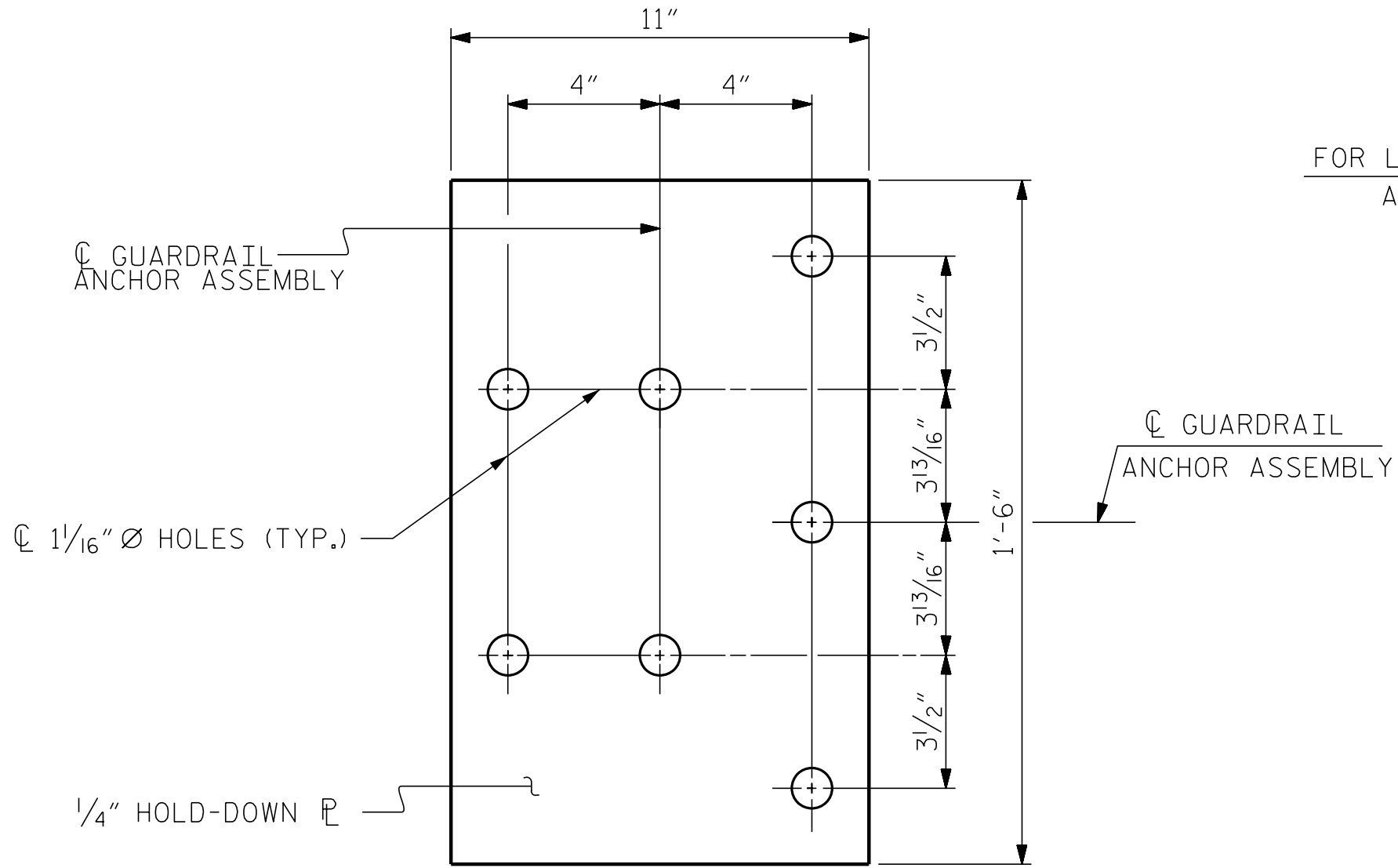
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

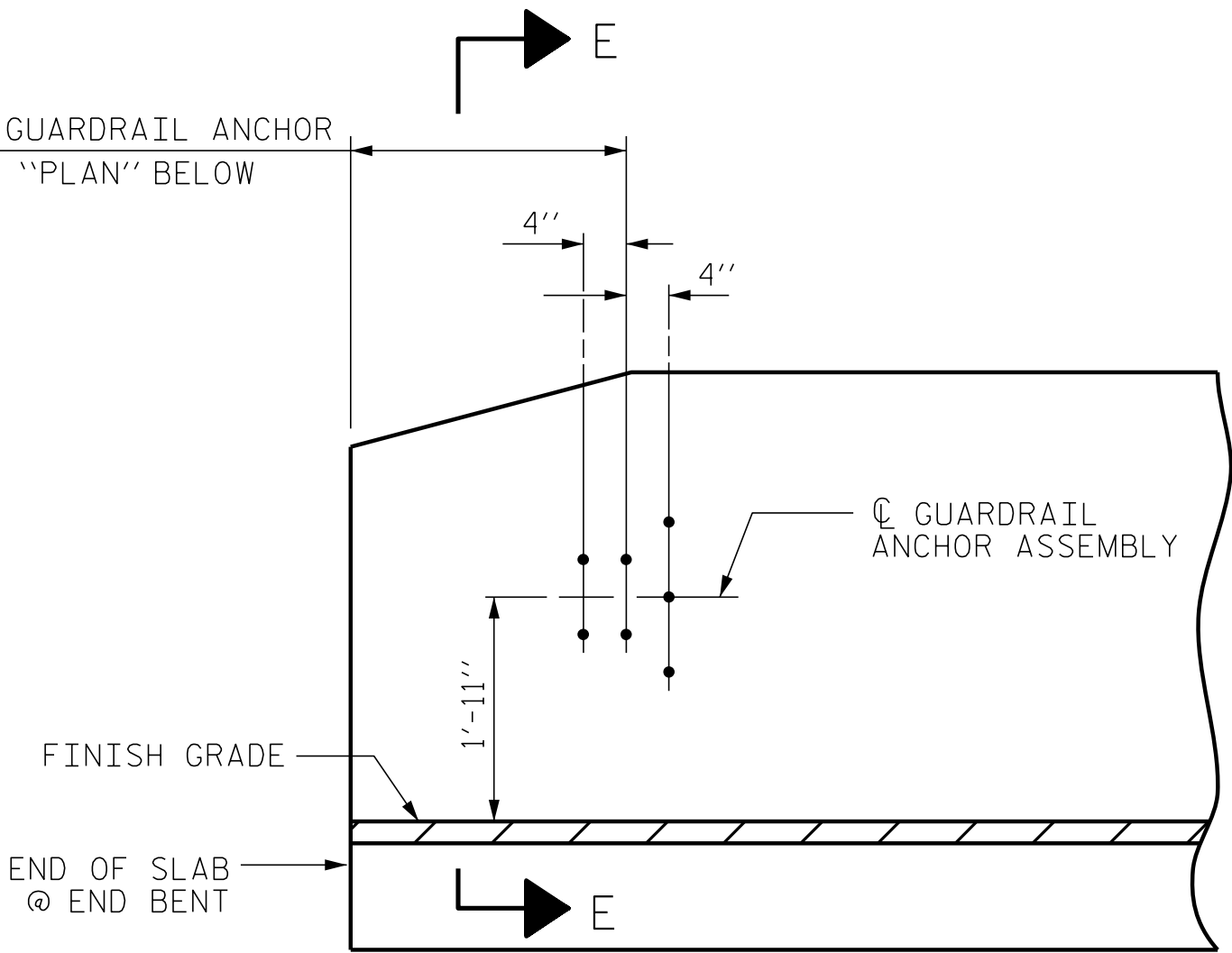
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

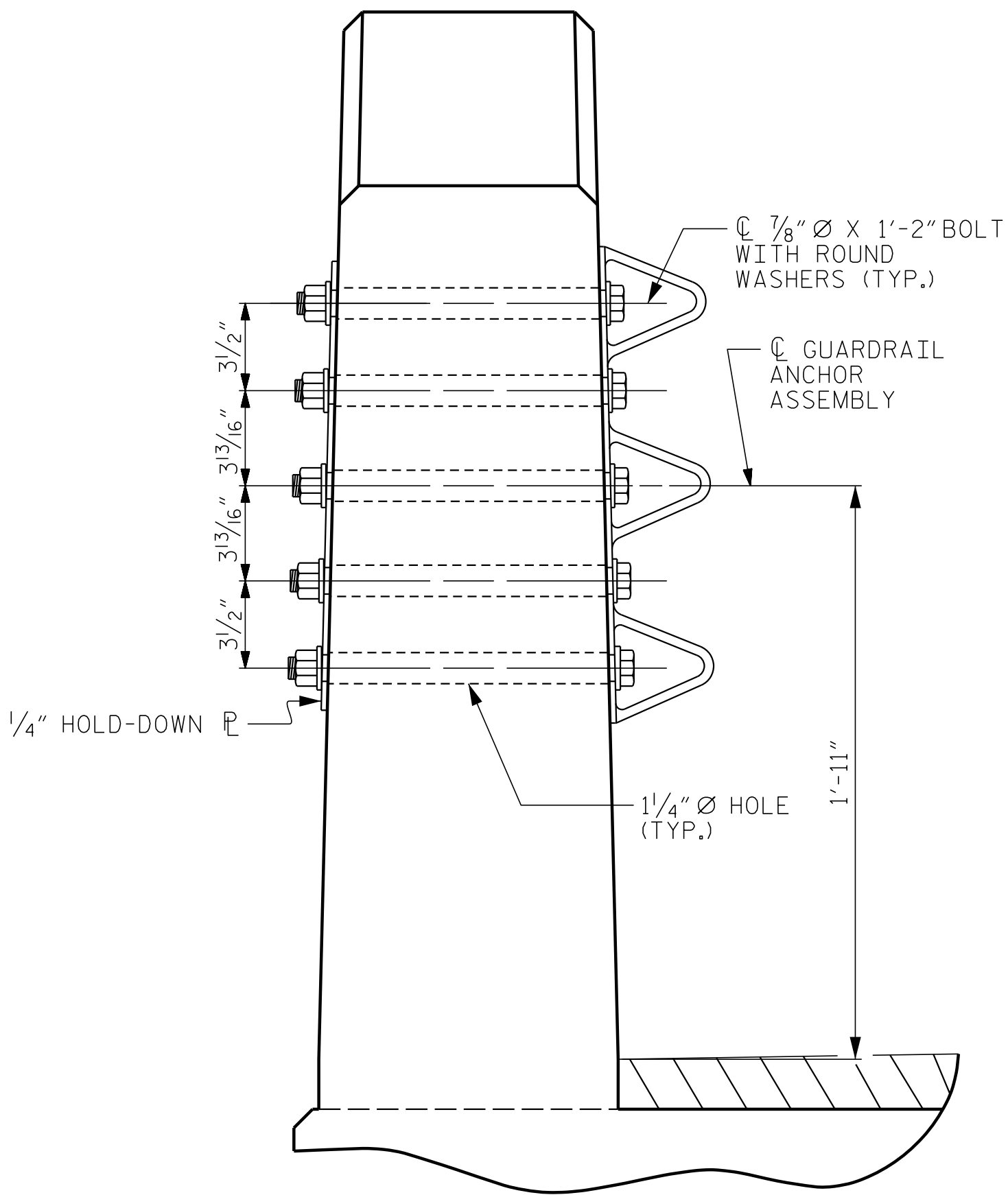


PLAN

FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW

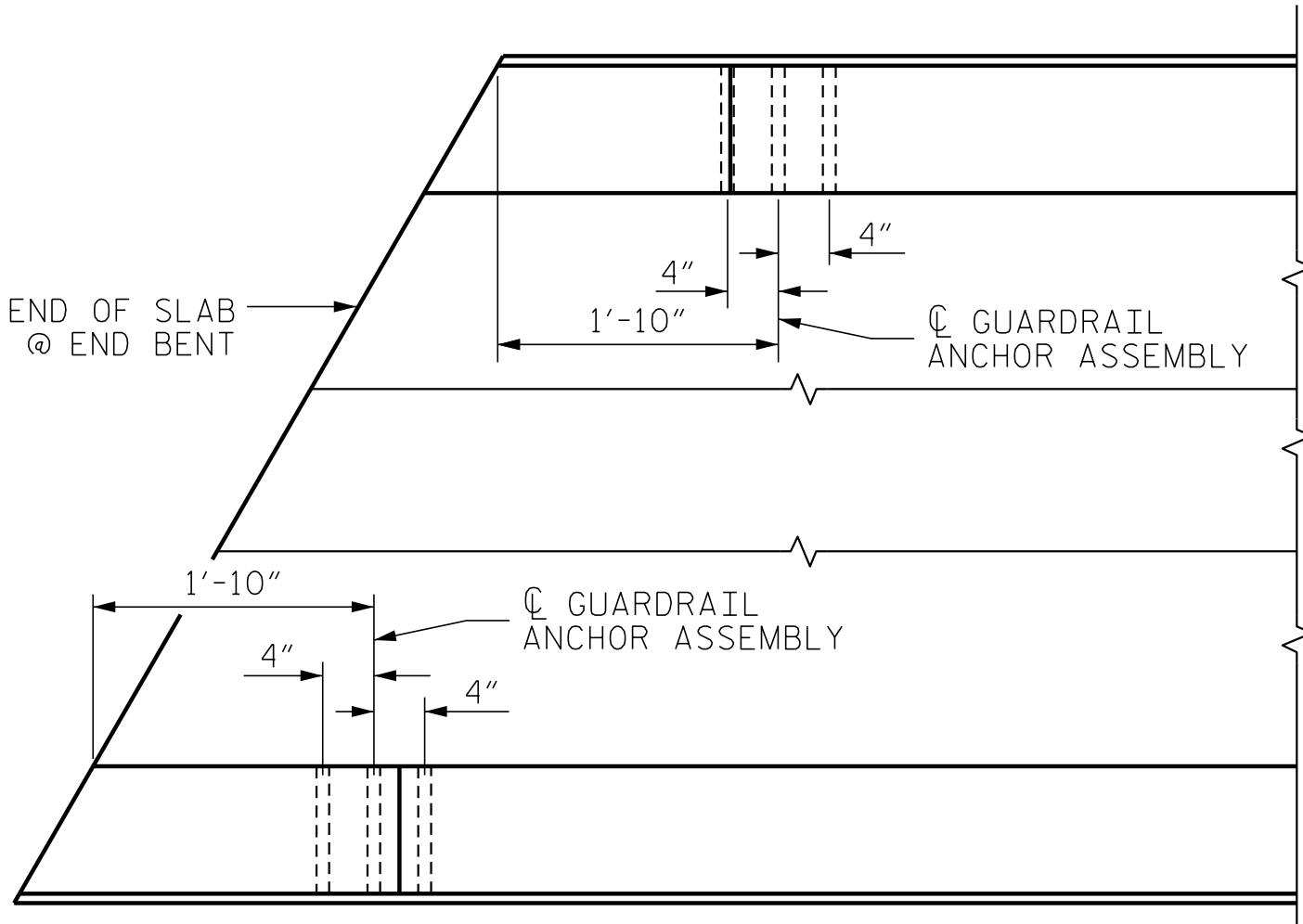


ELEVATION



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT

\* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4775  
MACON COUNTY  
STATION: 14+32.00 -L-

ENGINEER OF RECORD

**SEAL**

1208  
12/1/2018  
ENGINEER  
CHARLES HUNT

DocuSigned by  
Charles Hunt  
2F15C8973BAEC

**WETHERILL ENGINEERING**

1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
Bus: 919 851 8077  
Fax: 919 851 8107  
LICENSE NO. F-0377

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-8
2			4			
TOTAL SHEETS						18

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THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR TEMPORARY DRAINAGE DETAILS, SEE END  
BENT 2, SHEET 3 OF 3

THE COST OF THE HOLD DOWN PLATES, ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE INCLUDED IN THE CORED SLAB PAY ITEMS.

## PLAN



FOOTING DIMENSIONS AND REINFORCING STEEL ARE  
TYPICAL FOR EACH FOOTING EXCEPT AS NOTED  
WINGS NOT SHOW FOR CLARITY

\*\* THE FOOTING DEPTH OF FOOTING  
 No.1 IS ANTICIPATED TO BE 2'-6".  
 IF SOUND MATERIAL IS ENCOUNTERED  
 BEFORE A DEPTH OF 2'-6", A MIN.  
 FOOTING DEPTH OF 2'-0" MAY BE USED.

DRAWN BY : B.C. HUNT DATE : 6/2017  
CHECKED BY : J.A. DILWORTH DATE : 7-2017

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PROJECT NO. B-4775  
MACON COUNTY  
 STATION: 14+32.00 -L-

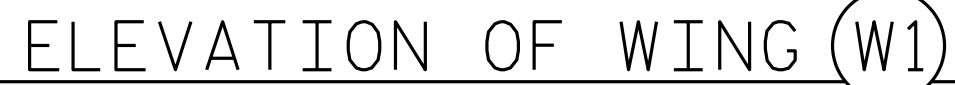
SHEET 1 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
END BENT No. 1

G	REVISIONS						SHEET NO.
	NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
	1			3			TOTAL SHEETS
	2			4			18

SHEET NO.


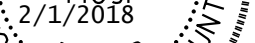


## WING DETAILS



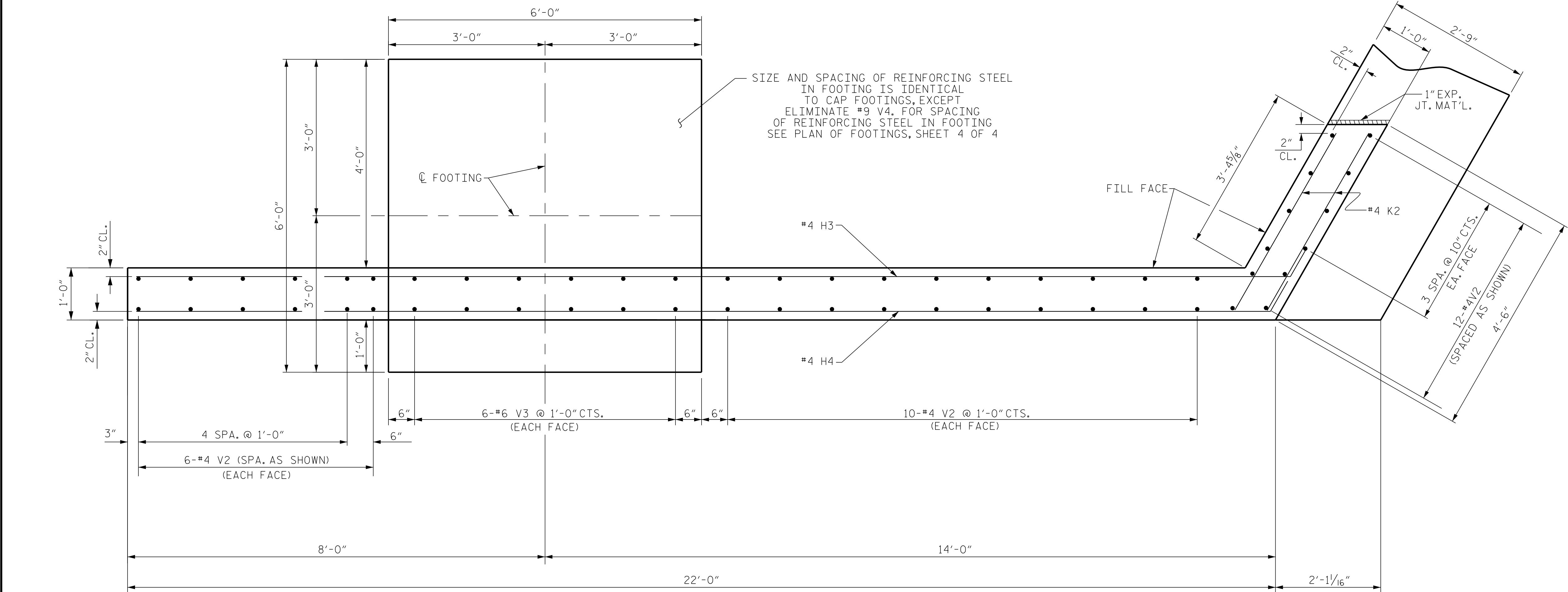
SHEET 2 OF 4

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

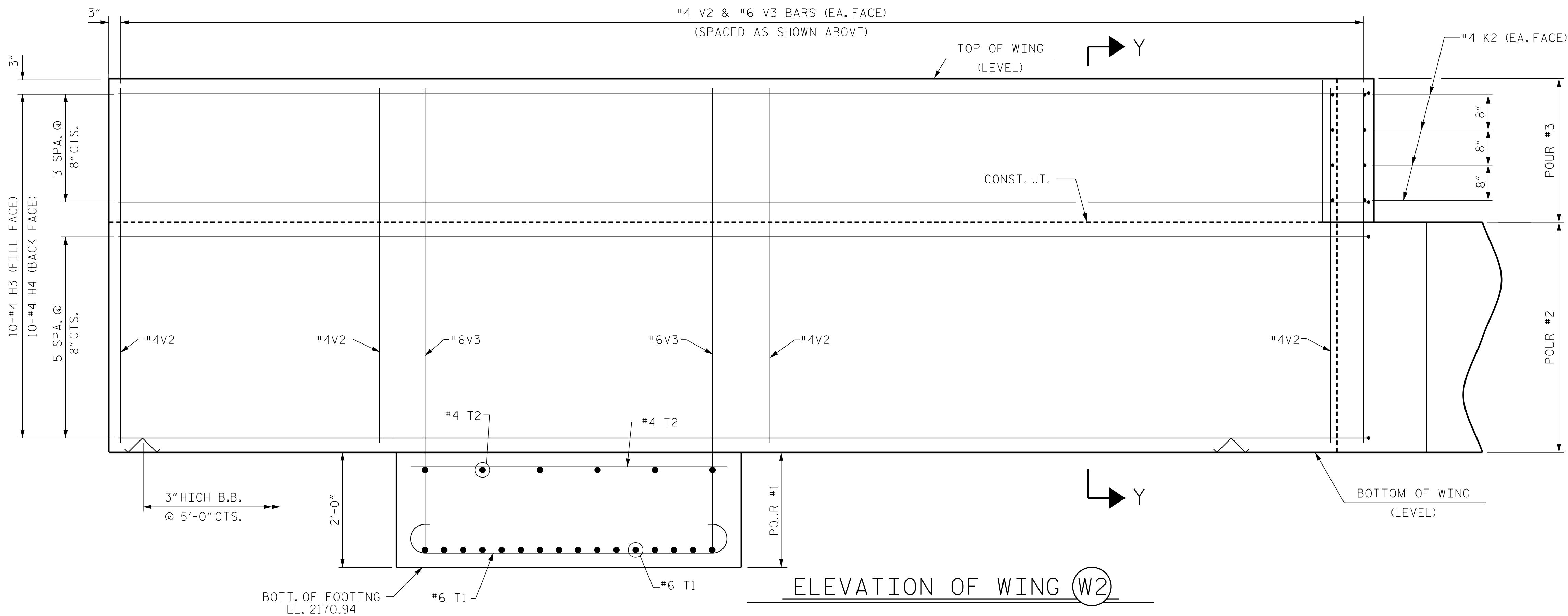
<p>ENGINEER OF RECORD</p> <div style="text-align: center;">  </div> <p>Decoded/signed by  <i>Buck Charles Hunt</i>              0F15C397/38A4EC.</p> <div style="text-align: center;">  </div> <p>1223 Jones Franklin Rd.              Raleigh, N.C. 27606              Bus: 919 851 8077              Fax: 919 851 9107              LICENSE NO. F-0377</p>	<p style="text-align: center;">STATE OF NORTH CAROLINA</p> <p style="text-align: center; font-size: 1.2em;">DEPARTMENT OF TRANSPORTATION</p> <p style="text-align: center;">RALEIGH</p> <p style="text-align: center; font-size: 1.5em;">SUBSTRUCTURE</p> <p style="text-align: center; font-size: 2em;">END BENT No. 1</p> <p style="text-align: center; font-size: 2em;">WING DETAILS</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 20px;"> <tr> <th colspan="4" style="text-align: center;">REVISIONS</th> <th style="text-align: center;">SHEET No.</th> </tr> <tr> <th style="width: 10%;">NO.</th> <th style="width: 10%;">BY:</th> <th style="width: 20%;">DATE:</th> <th style="width: 10%;">NO.</th> <th style="width: 10%;">BY:</th> <th style="width: 10%;">DATE:</th> <th rowspan="3" style="text-align: center; vertical-align: middle;"> <div style="border: 1px solid black; padding: 5px; width: 50px; margin: 0 auto;">                     TOTAL SHEETS 18                 </div> </th> </tr> <tr> <td style="text-align: center;">1</td> <td></td> <td></td> <td style="text-align: center;">3</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td></td> <td></td> <td style="text-align: center;">4</td> <td></td> <td></td> </tr> </table>	REVISIONS				SHEET No.	NO.	BY:	DATE:	NO.	BY:	DATE:	<div style="border: 1px solid black; padding: 5px; width: 50px; margin: 0 auto;">                     TOTAL SHEETS 18                 </div>	1			3			2			4		
REVISIONS				SHEET No.																					
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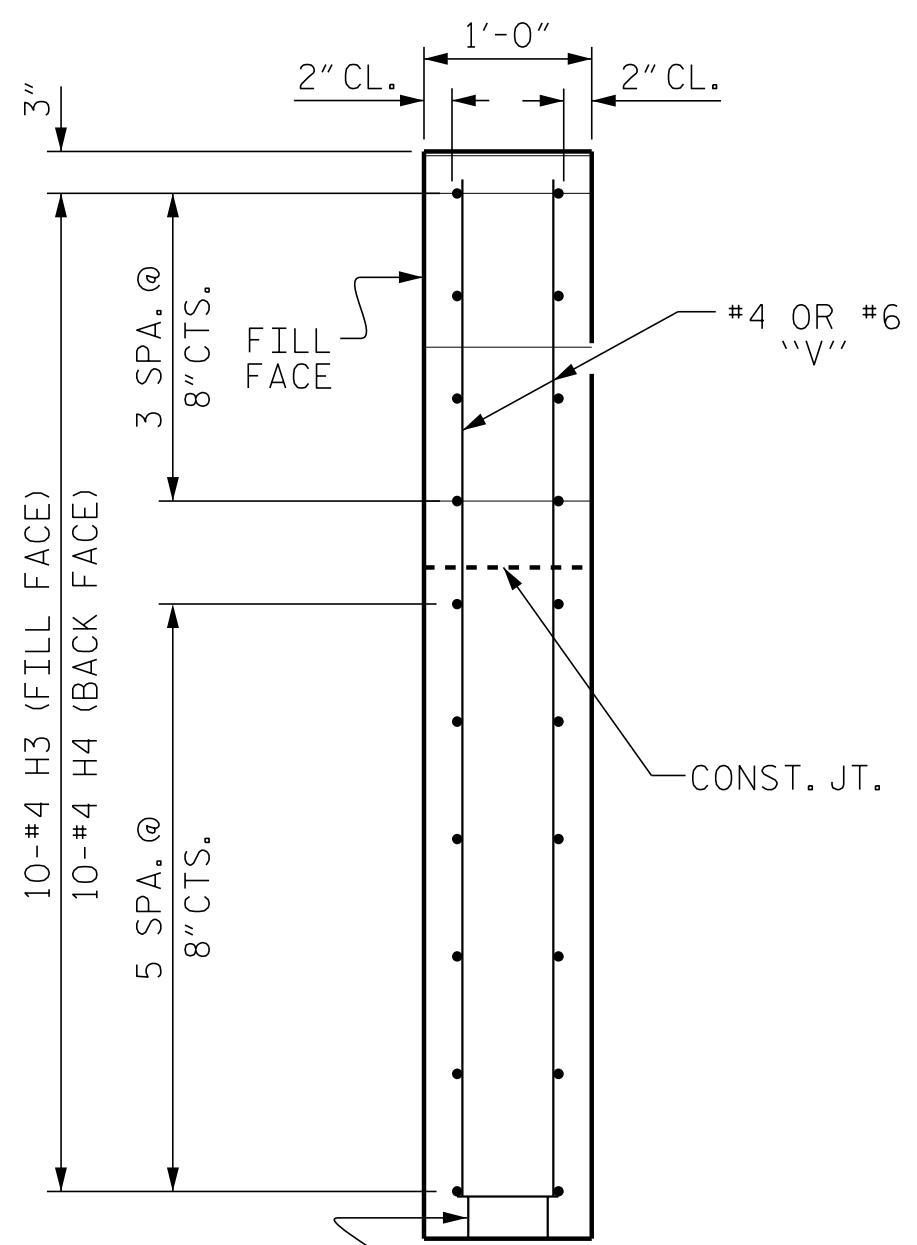
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PLAN OF WING (W2)



ELEVATION OF WING (W2)



SECTION Y-Y

PROJECT NO. B-4775  
MACON COUNTY  
STATION: 14+32.00 -L-  
SHEET 3 OF 4

DRAWN BY: B.C. HUNT DATE: 6/2017  
CHECKED BY: J.A. DILWORTH DATE: 7/2017

WING DETAILS

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ENGINEER OF RECORD  
  
Buck Charles Hunt  
2F15C8973BAEC

1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
Bus: 919 851 8077  
Fax: 919 851 8107  
LICENSE NO. F-0377

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			18





NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS AND ANCHOR BOLTS.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPlice DETAILS, SEE SHEET 3 OF 3.

FOR WING DETAILS, SEE SHEET 2 OF 3.

THE COST OF THE HOLD DOWN PLATES, ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE INCLUDED IN THE CORED SLAB PAY ITEMS.

TOP OF PILE ELEVATIONS	
①	2174.06
②	2173.79
③	2173.52
④	2173.25
⑤	2172.98

PROJECT NO. B-4775  
MACON COUNTY  
STATION: 14+32.00 -L-

SHEET 1 OF 3

ENGINEER OF RECORD

NORTH CAROLINA

PROFESSIONAL

SEAL

14091

02/11/2018

ENGINEER

CHARLES HUNT

Designed by:

Buck Charles Hunt

0215020072044EC

1223 Jones Franklin Rd.

Raleigh, N.C. 27606

Bus: 919 851 8077

Fax: 919 851 8107

LICENSE NO. F-0377

ETHERILL

ENGINEERING

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

SUBSTRUCTURE

END BENT No. 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			
TOTAL SHEETS						18

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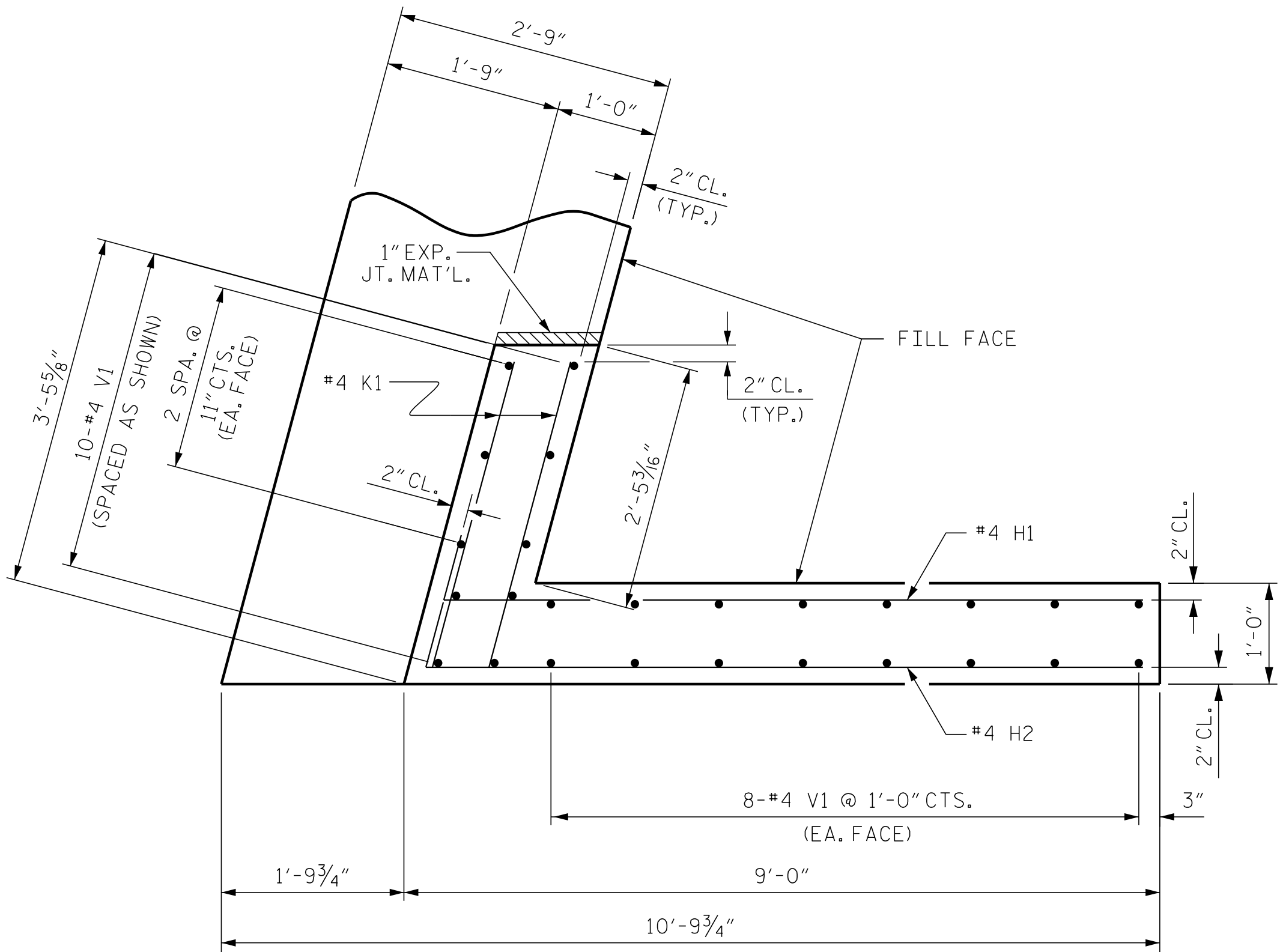
PLAN

ELEVATION

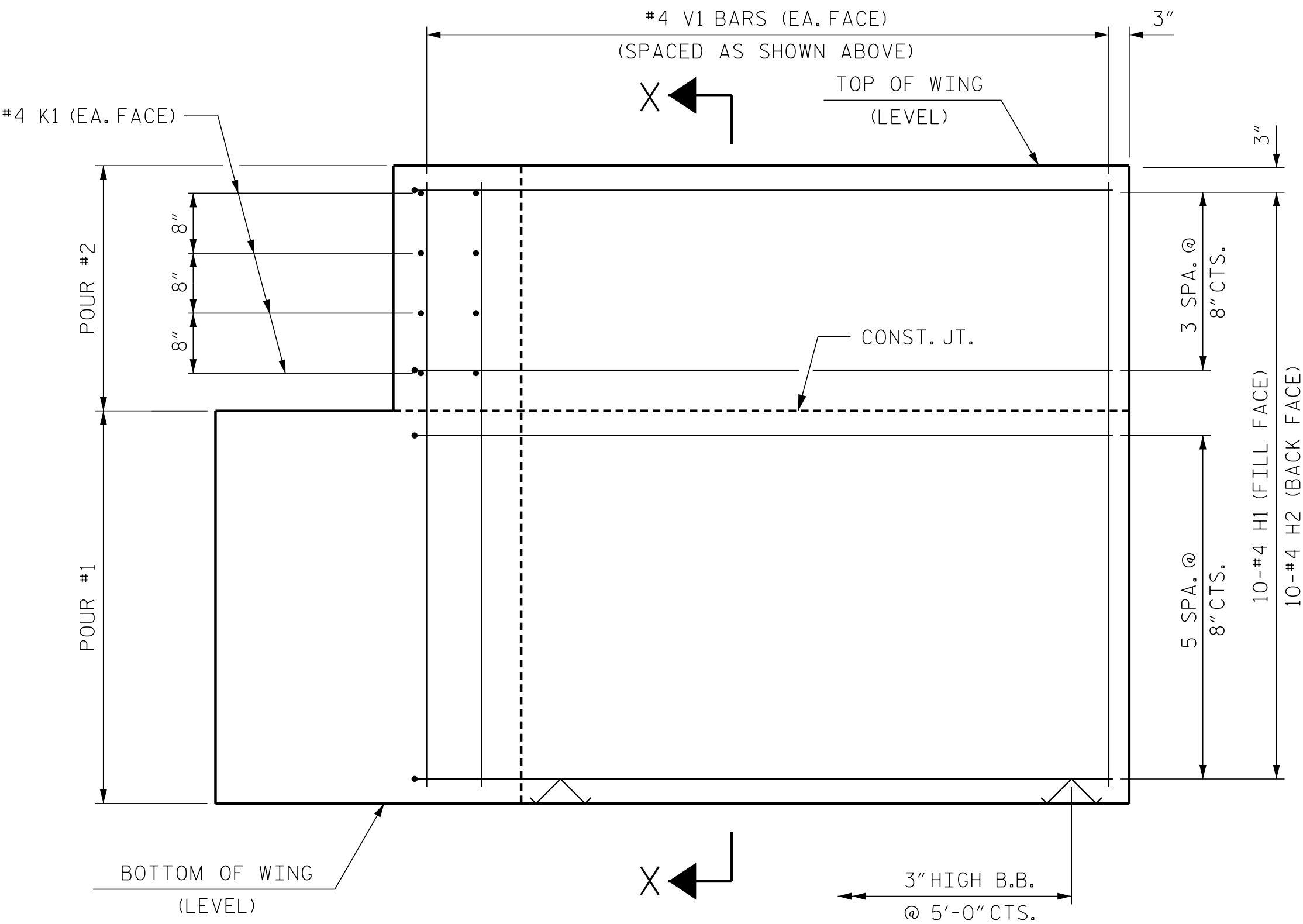
WINGS NOT SHOWN FOR CLARITY.  
FOR SECTION A-A, SEE SHEET 3 OF 3.  
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.  
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 3 OF 3.

DRAWN BY : B.C. HUNT DATE : 11/2016  
CHECKED BY : J.A. DILWORTH DATE : 1-2017

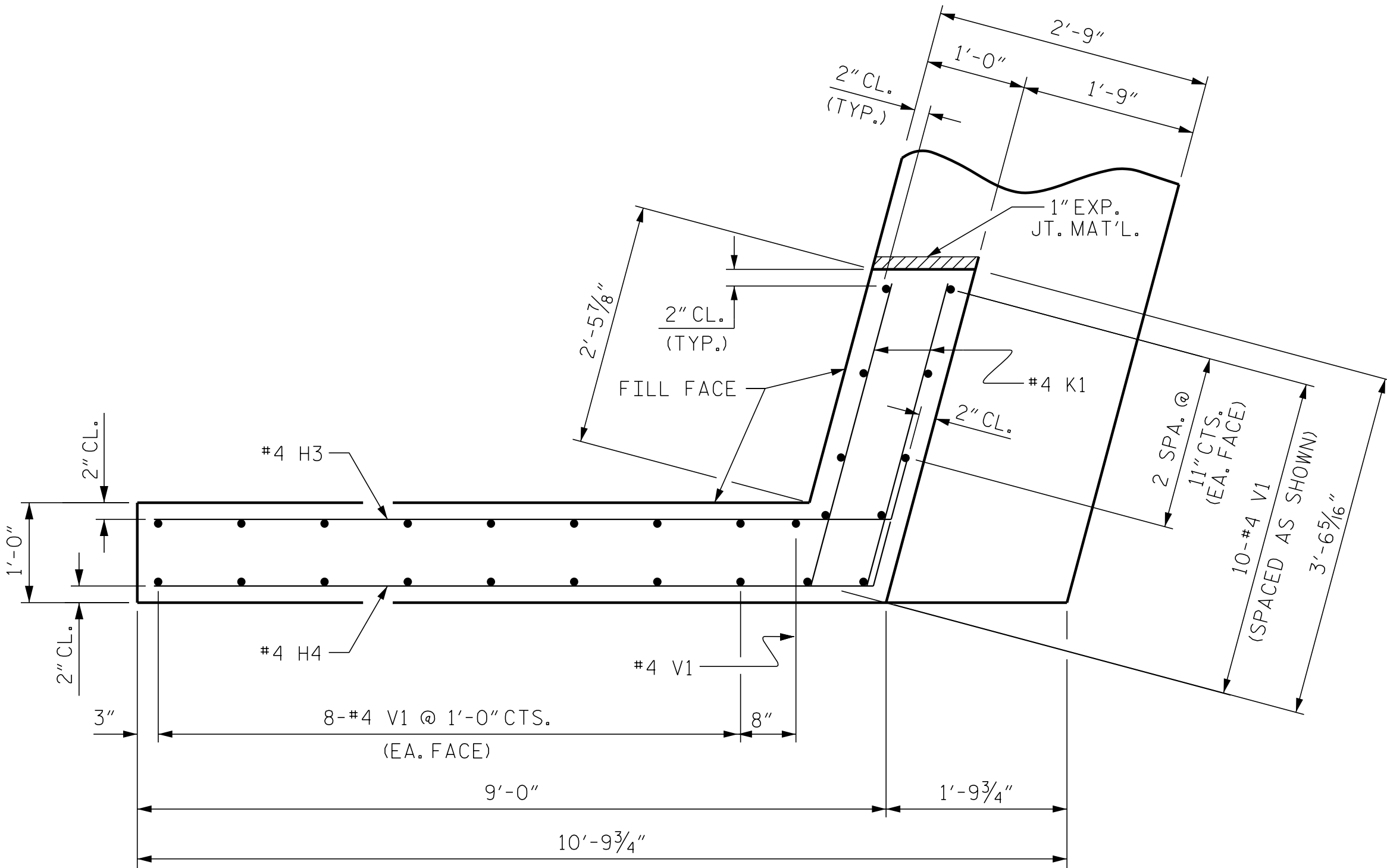
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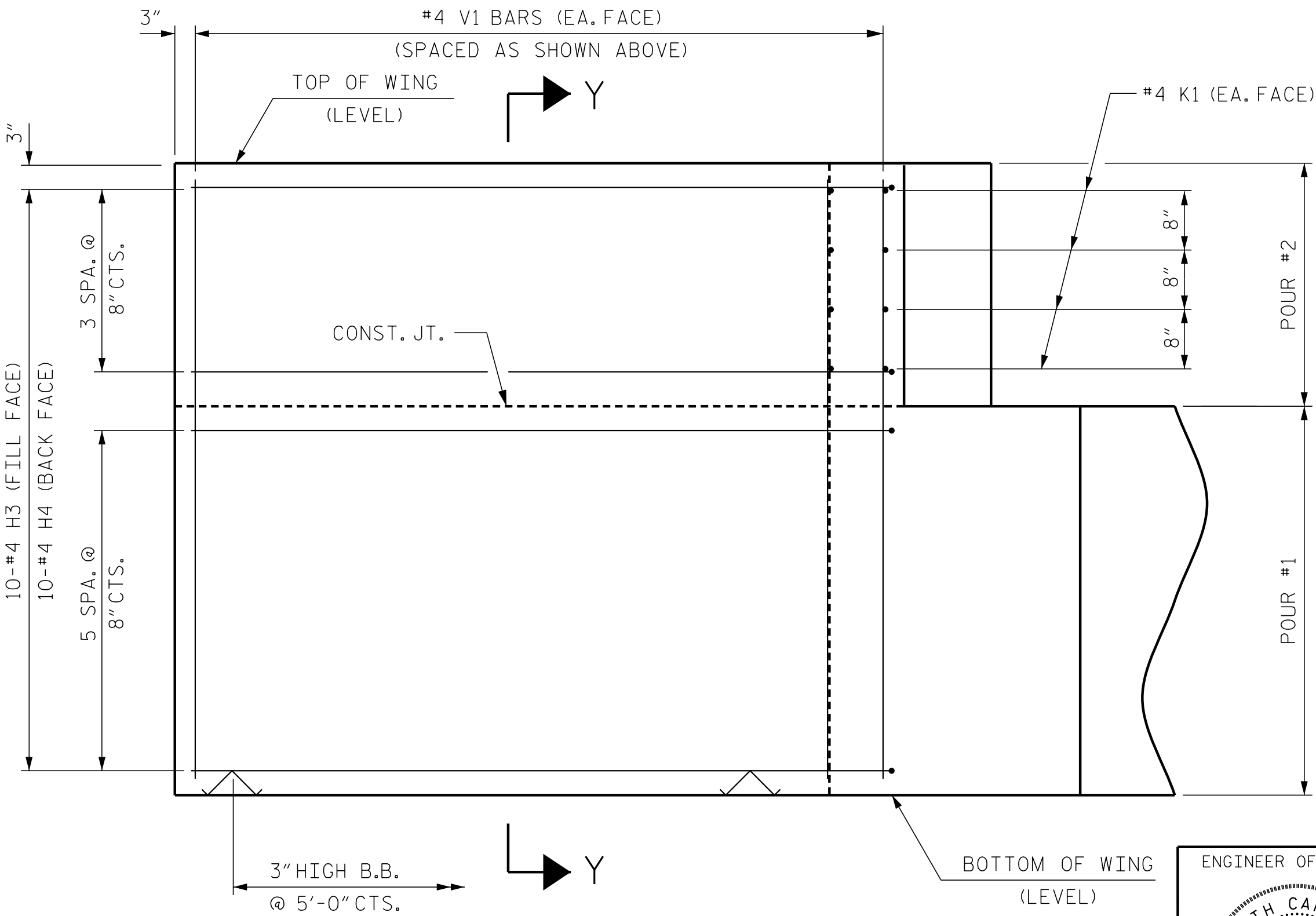
PLAN OF WING (W1)



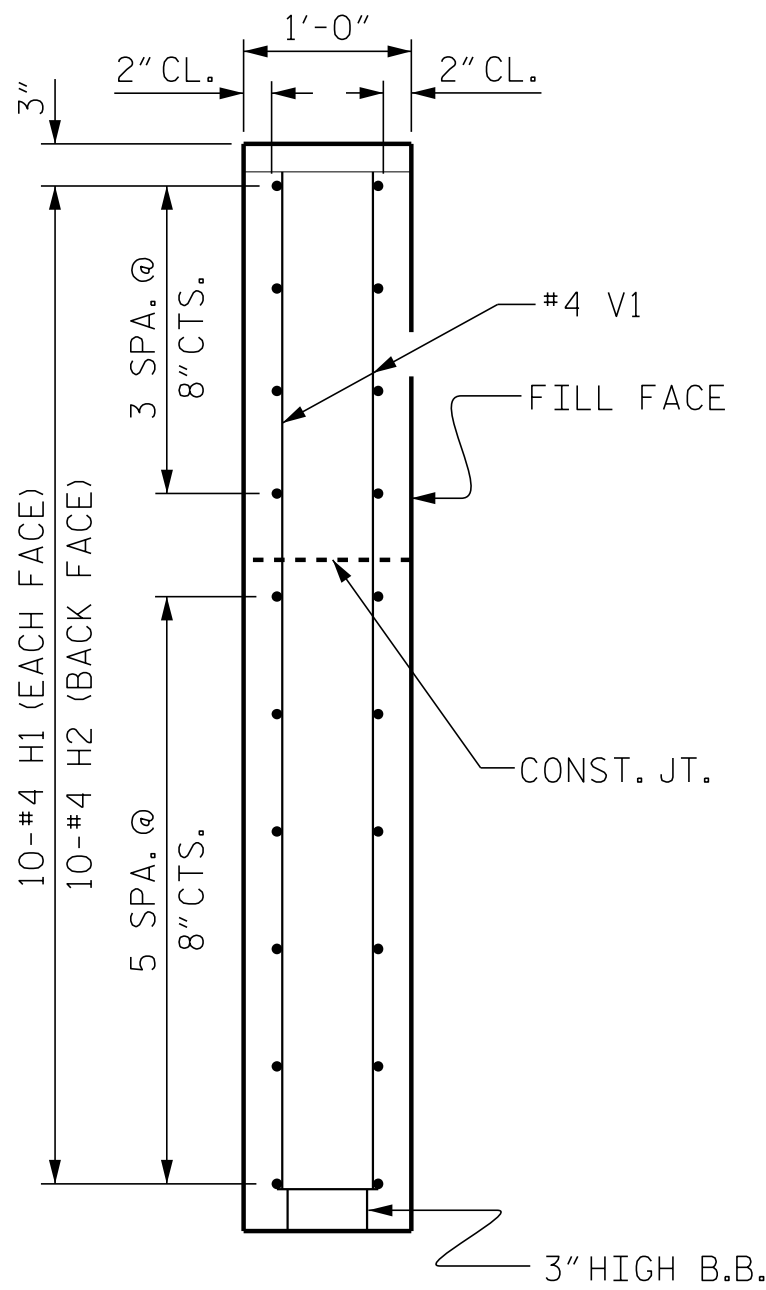
ELEVATION OF WING (W1)



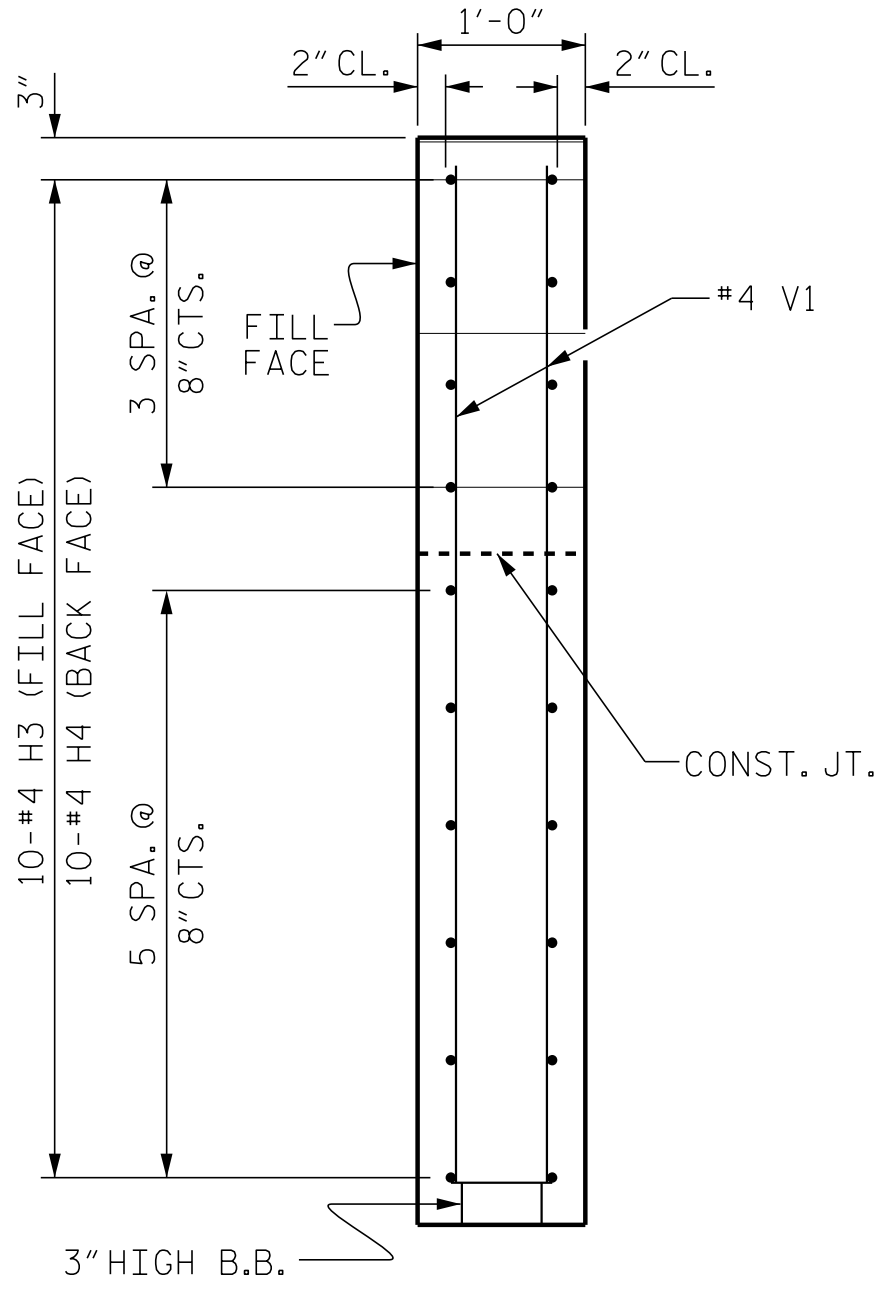
PLAN OF WING (W2)



ELEVATION OF WING (W2)



SECTION X-X



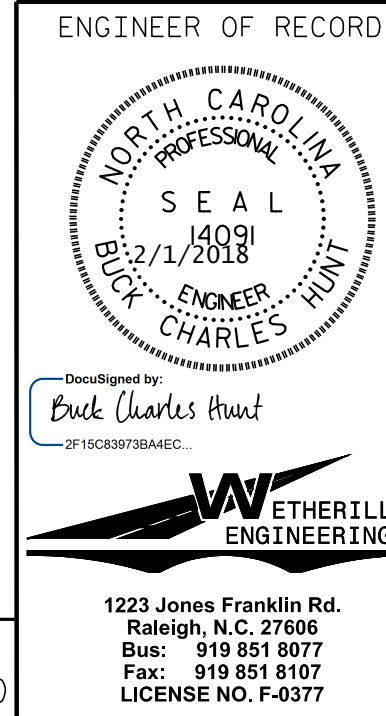
SECTION Y-Y

PROJECT NO. B-4775  
MACON COUNTY  
STATION: 14+32.00 -L-

SHEET 2 OF 3

DRAWN BY : B.C. HUNT DATE : 11/2016  
CHECKED BY : J.A. DILWORTH DATE : 1-2017

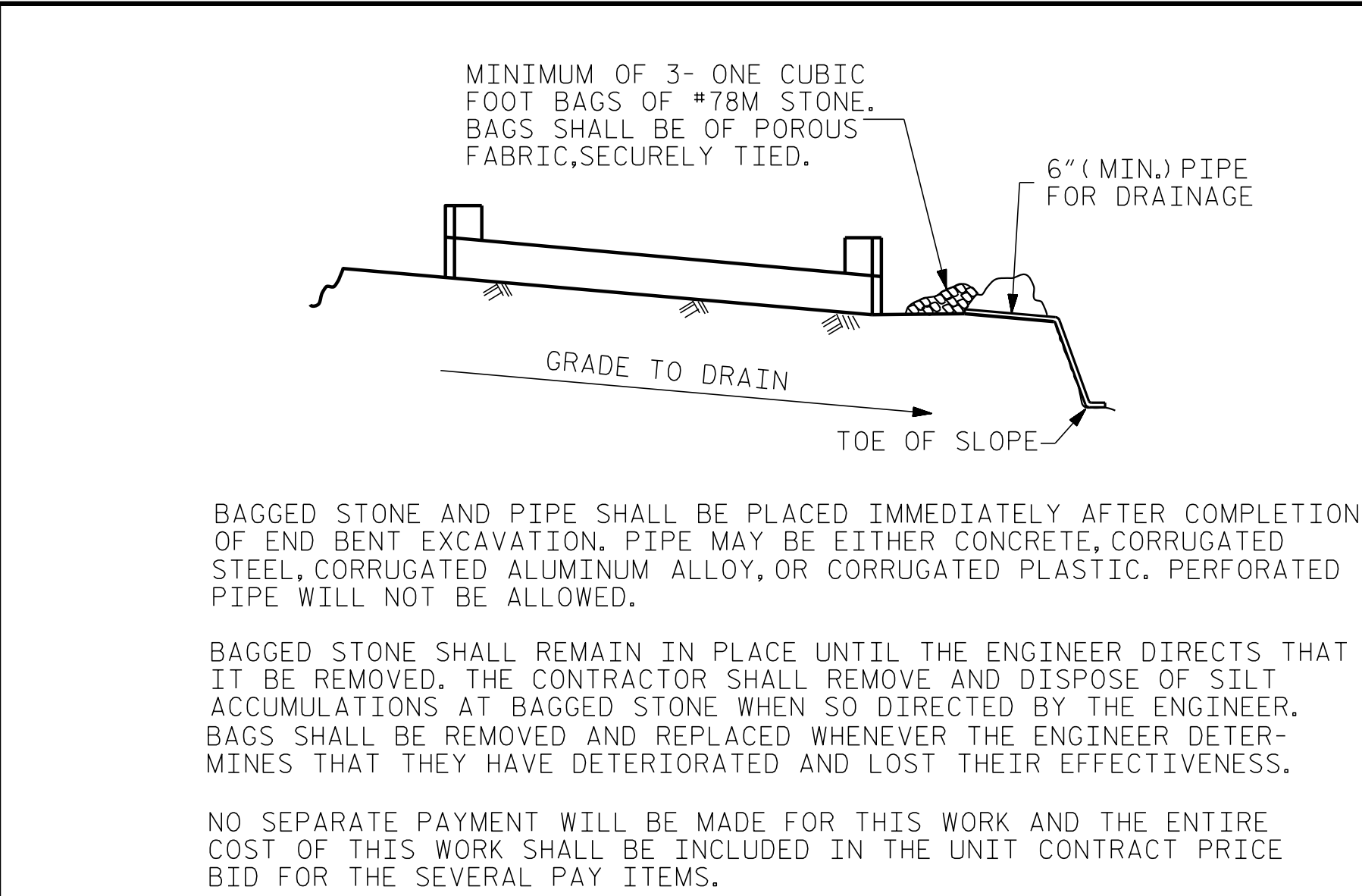
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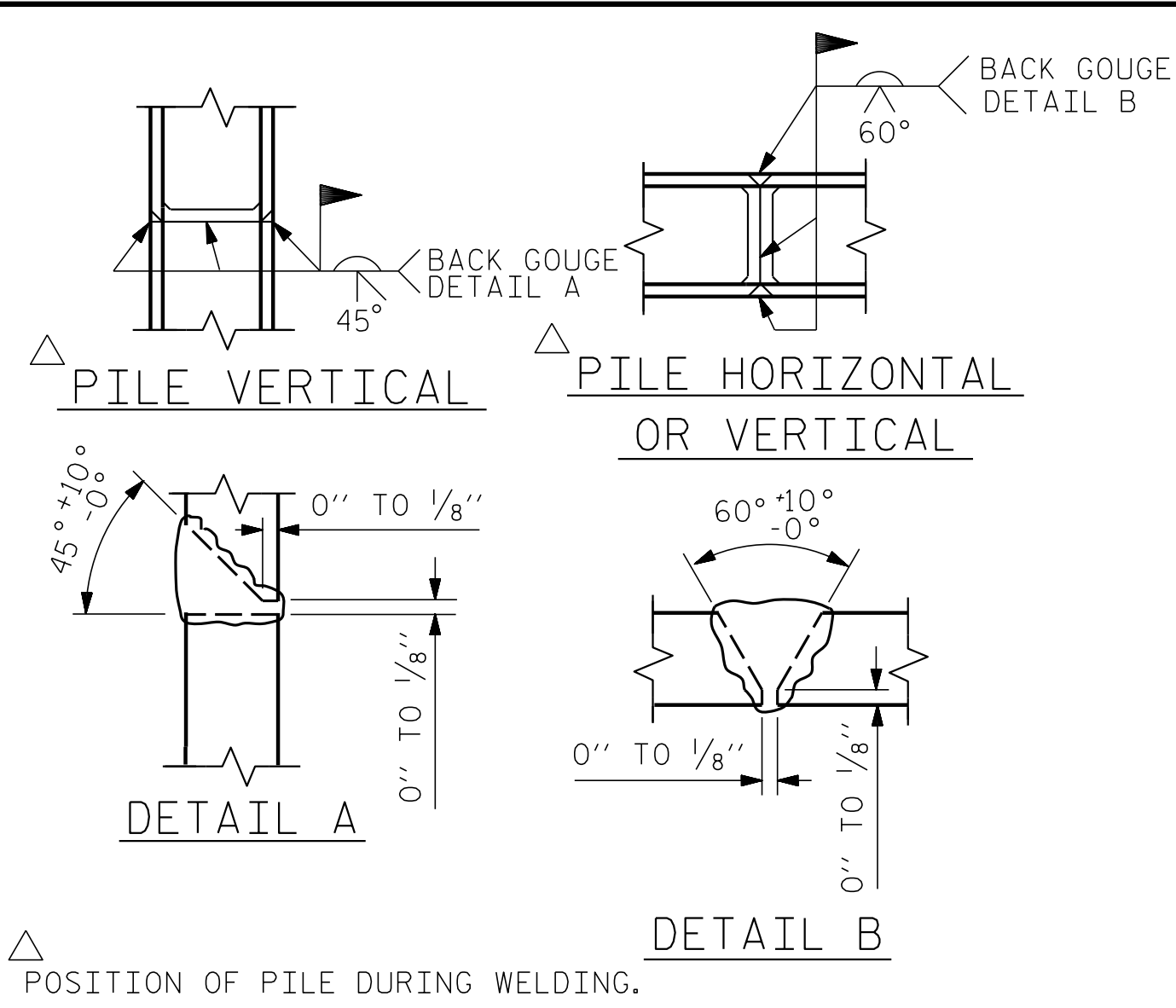
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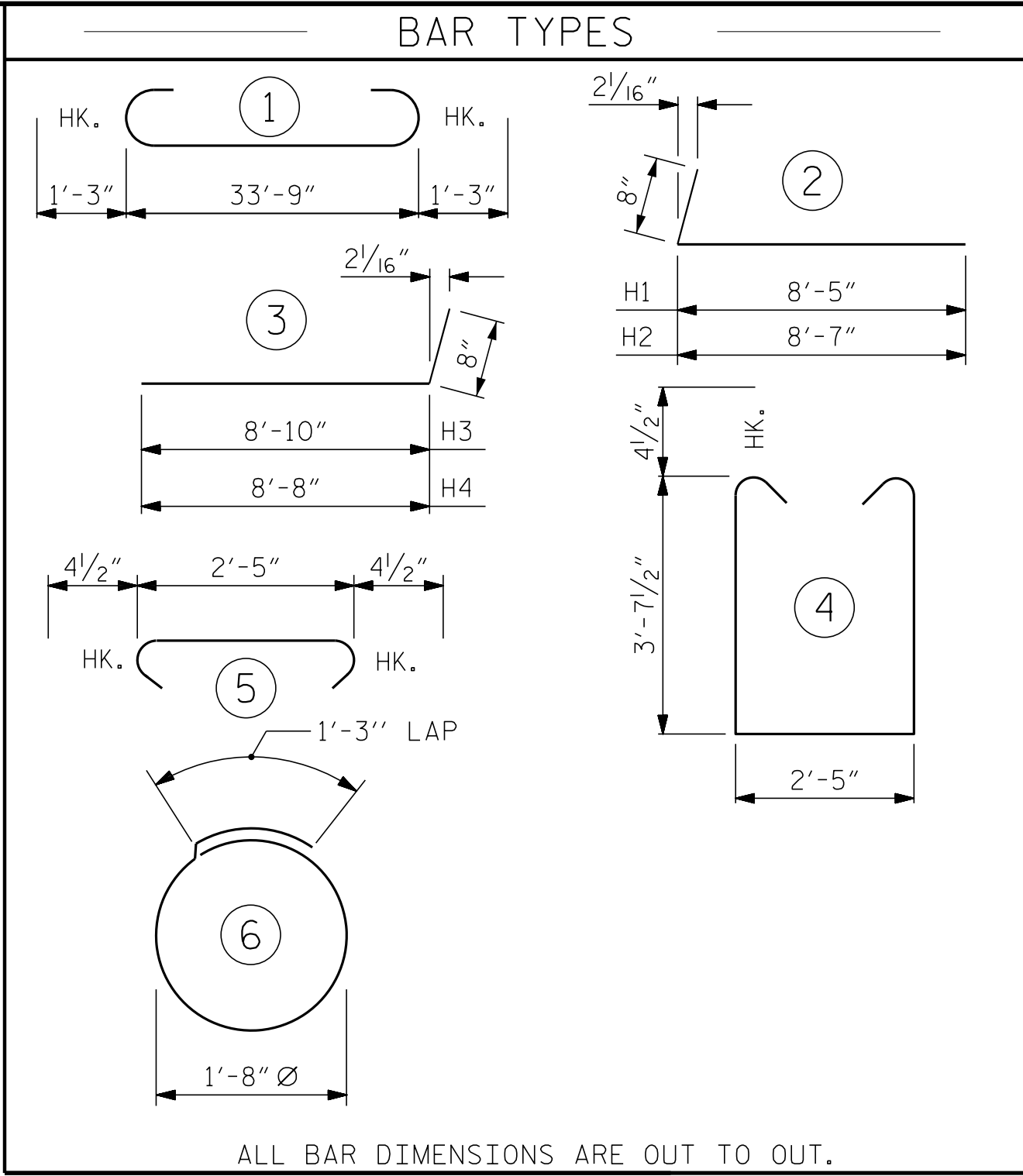
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TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS



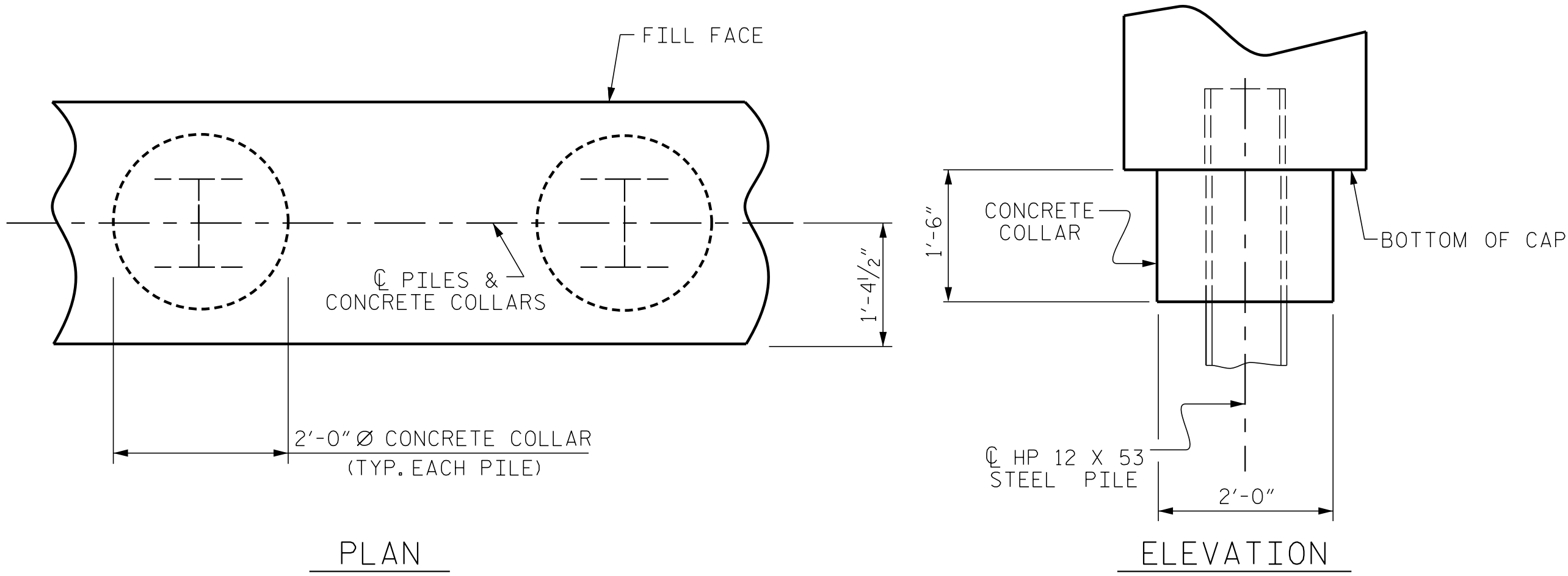
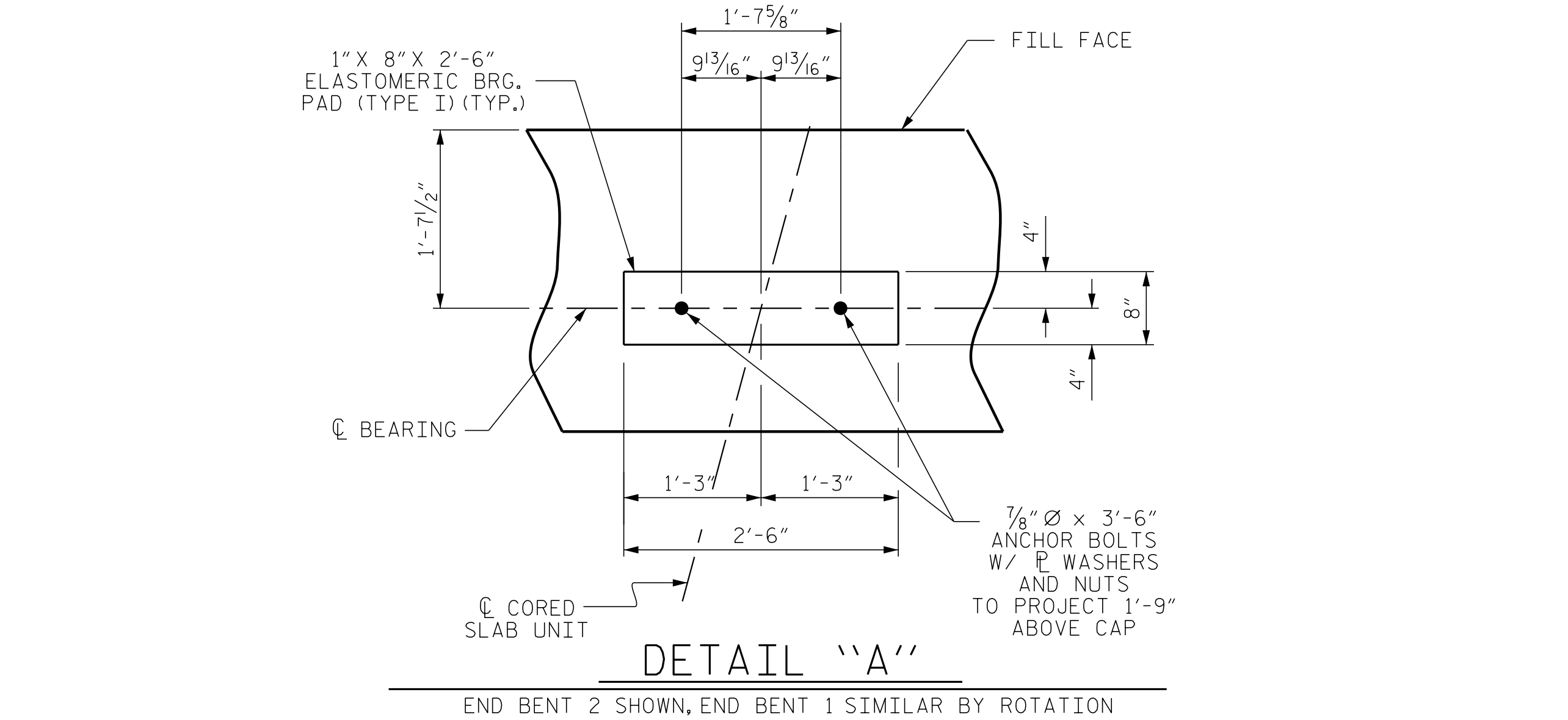
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END BENT No. 2

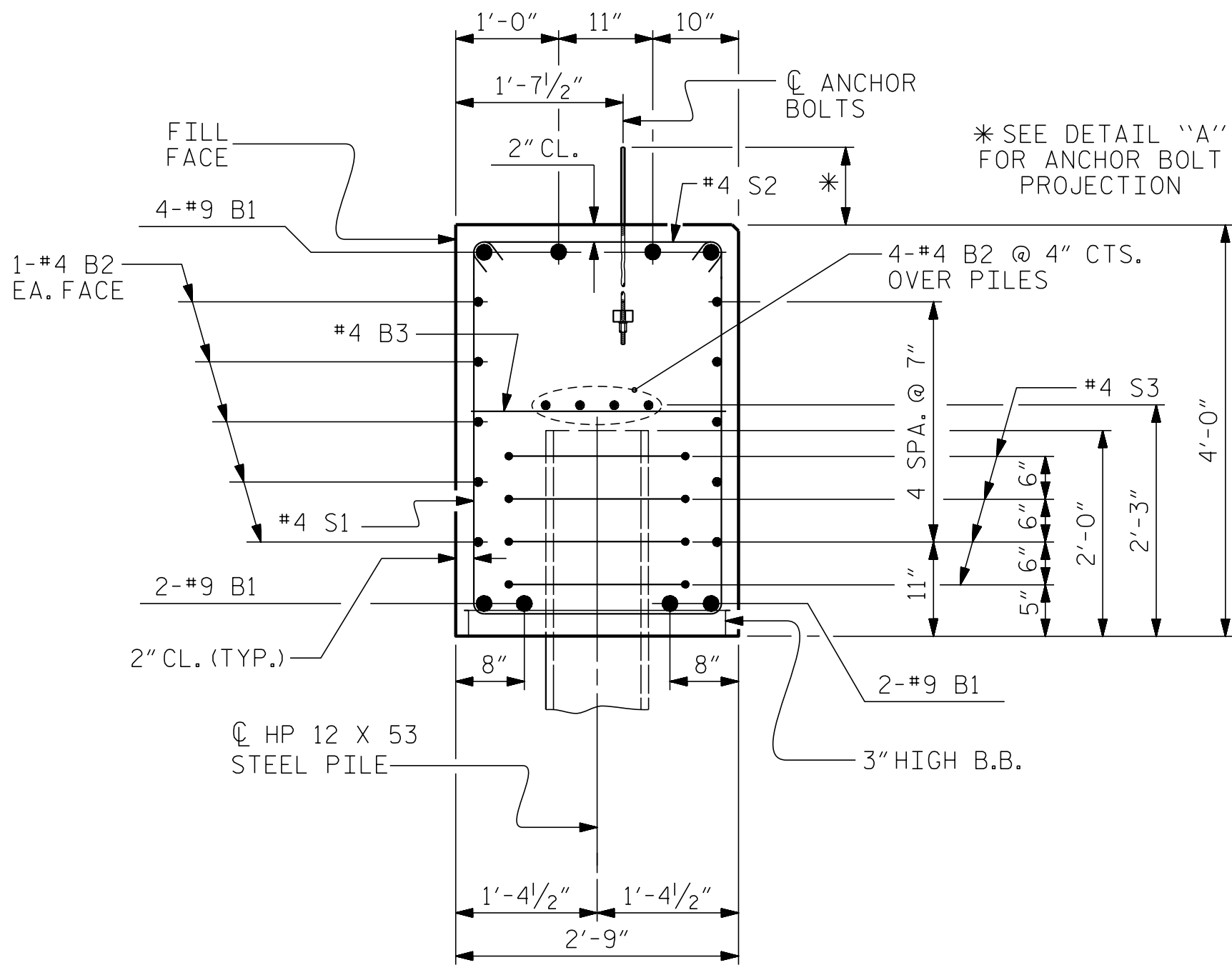
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
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B2	28	#4	STR	18'-2"	340
B3	9	#4	STR	2'-5"	15
H1	10	#4	2	9'-1"	61
H2	10	#4	2	9'-3"	62
H3	10	#4	3	9'-6"	63
H4	10	#4	3	9'-4"	62
K1	16	#4	STR	3'-1"	33
S1	44	#4	4	10'-5"	306
S2	44	#4	5	3'-2"	93
S3	20	#4	6	6'-6"	87
V1	53	#4	STR	6'-2"	218

REINFORCING STEEL		2326 LBS.
CLASS A CONCRETE BREAKDOWN		
POUR #1	CAP, LOWER PART OF WINGS & COLLARS	17.2 C.Y.
POUR #2	UPPER PART OF WINGS	2.1 C.Y.
TOTAL CLASS A CONCRETE		19.3 C.Y.
HP 12 X 53 STEEL PILES		
NO: 5	LIN. FT.= 100	
PILE DRIVING EQUIPMENT SET UP FOR HP 12 X 53 STEEL PILES		
		5 EA.
STEEL PILE POINTS		5 EA.
STEEL REDRIVES		3 EA.
ANCHOR BOLTS		
7/8" Ø x 3'-6" ANCHOR BOLTS WITH 2 WASHERS AND NUTS		18 EA.

FOR ANCHOR BOLT DETAILS, SEE SHEET S-5



CORROSION PROTECTION FOR STEEL PILES DETAIL



SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")

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UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. B-4775  
MACON COUNTY  
STATION: 14+32.00 -L-  
SHEET 3 OF 3

ENGINEER OF RECORD

SEAL

14091

2/1/2018

ENGINEER

CHARLES HUNT

DocuSigned by  
Buck Charles Hunt  
201609070846C...

WETHERILL  
ENGINEERING

1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
Bus: 919 851 8077  
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LICENSE NO. F-0377

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

SUBSTRUCTURE

END BENT No. 2

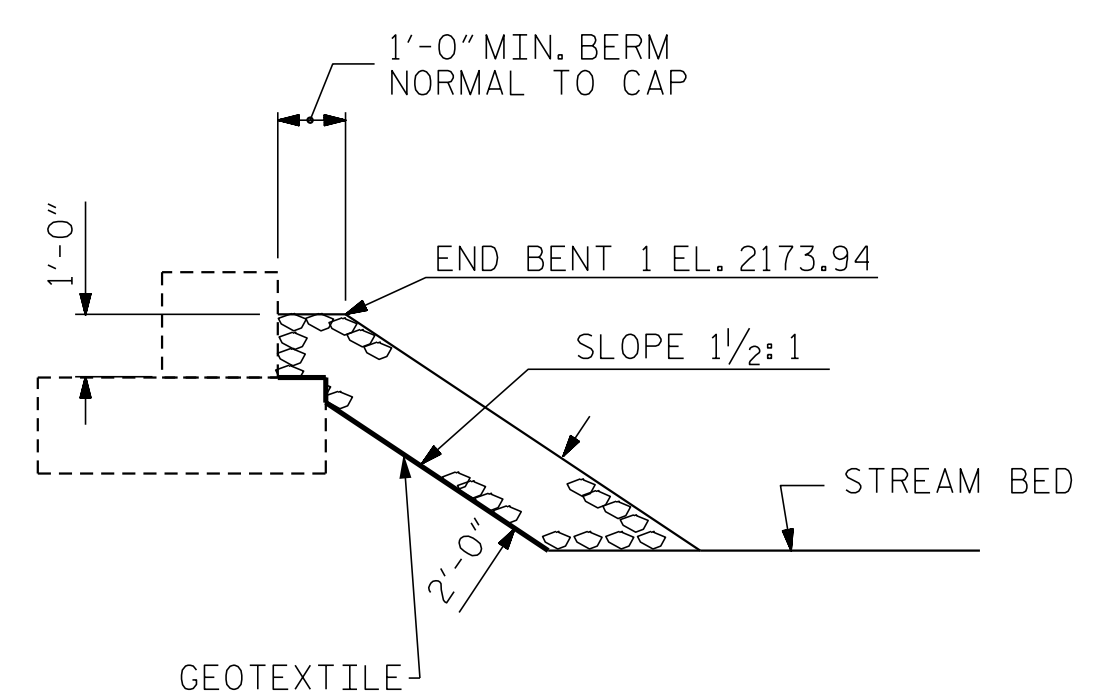
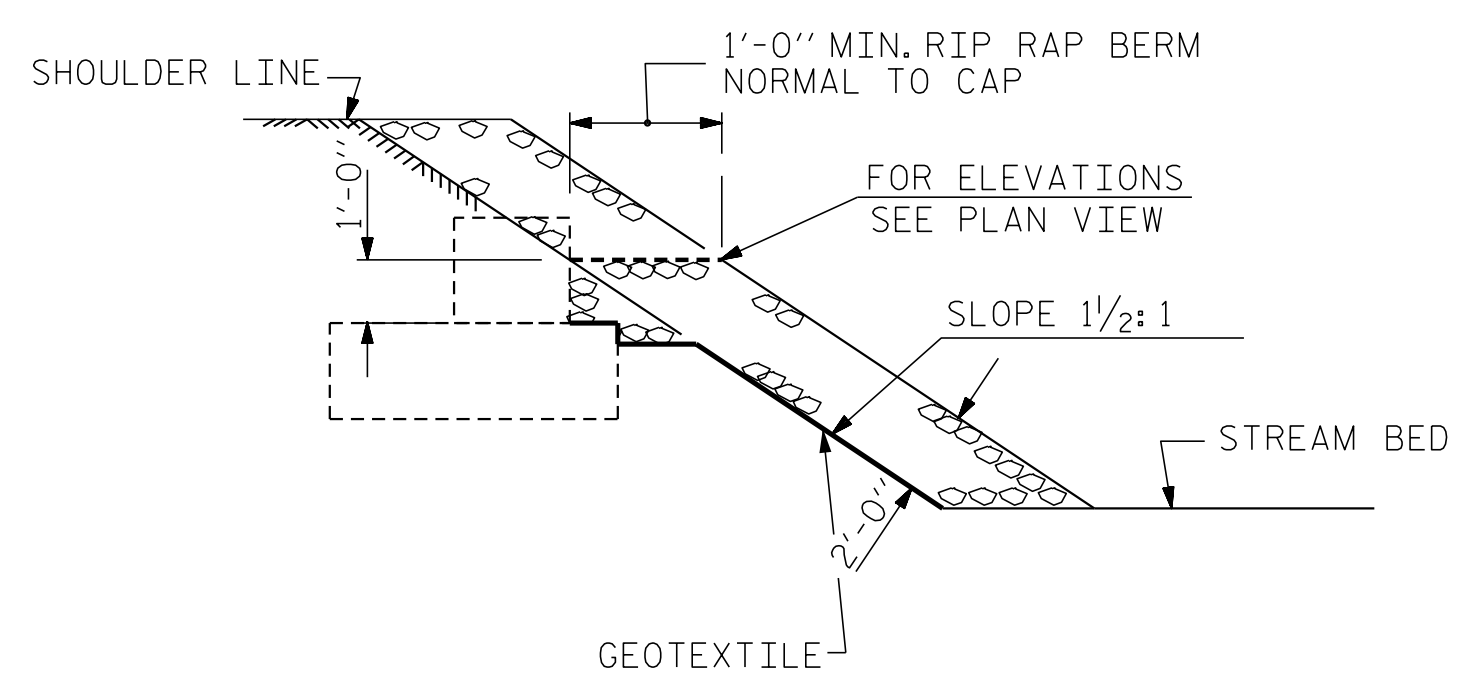
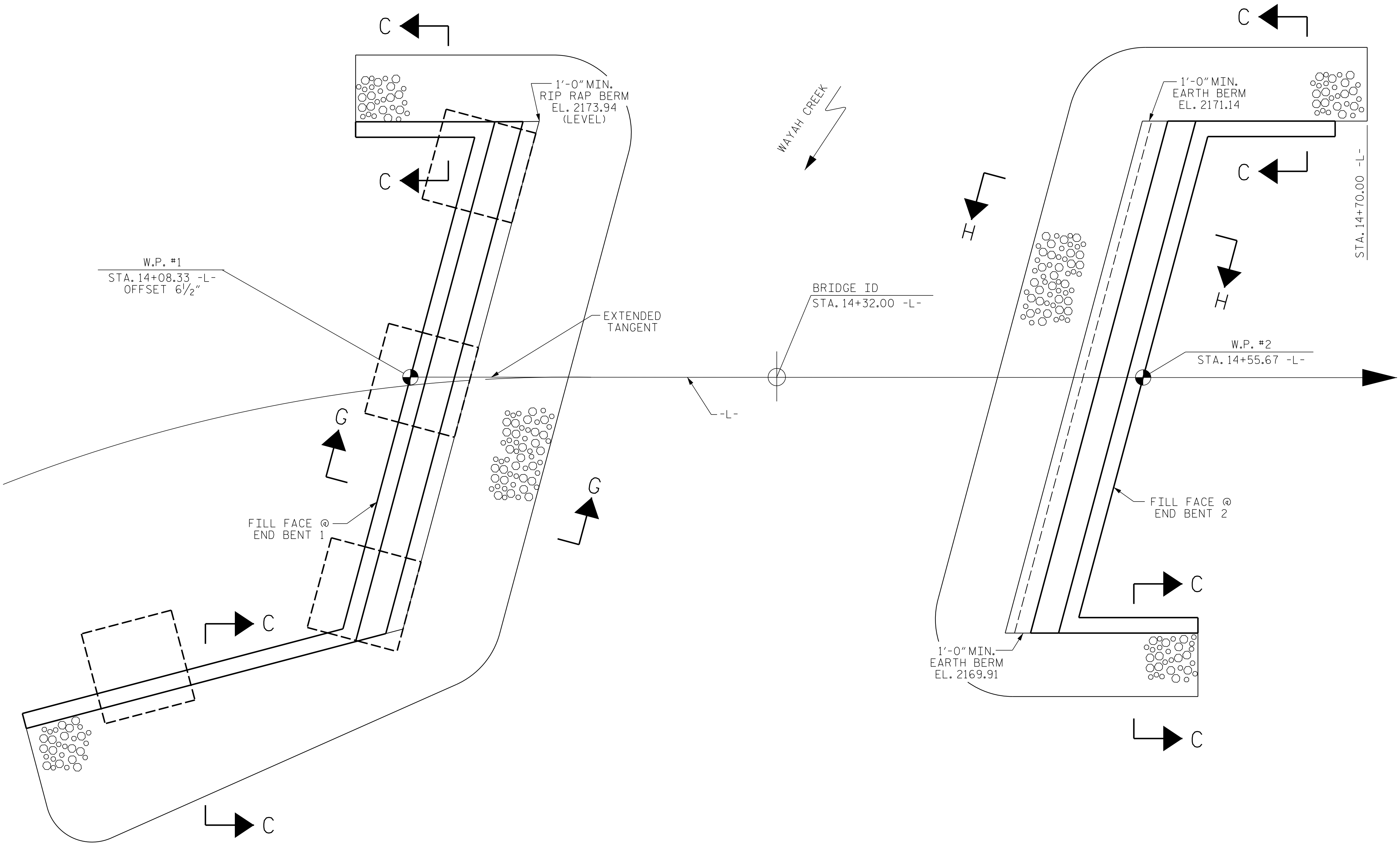
DETAILS

REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
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2			4		

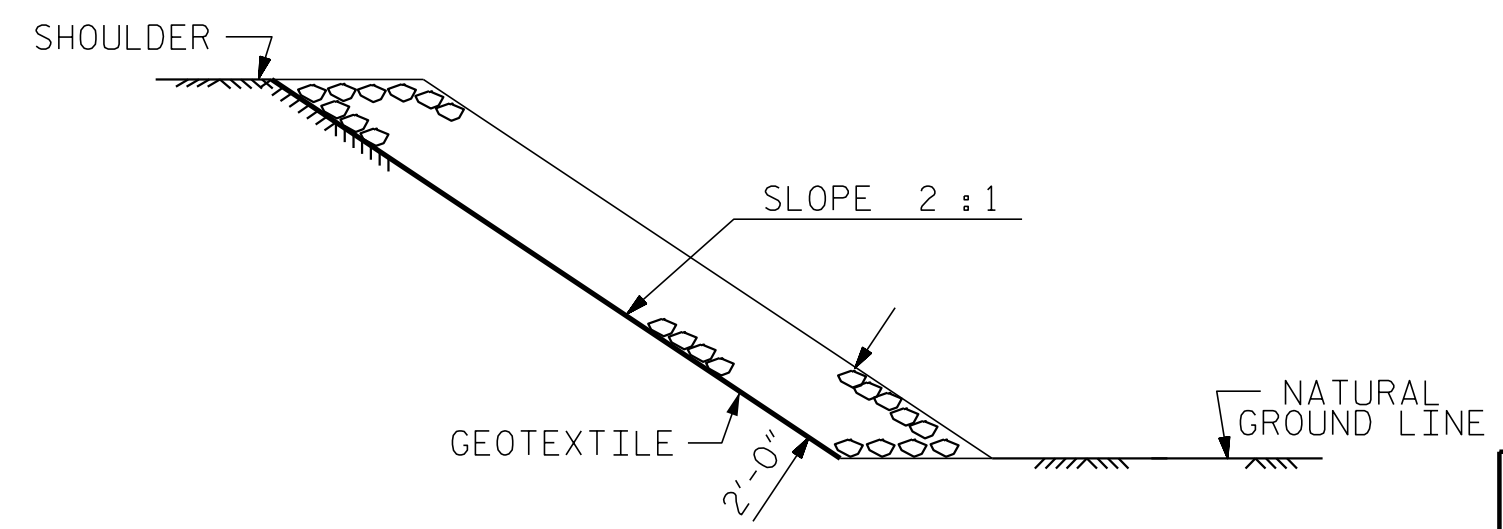
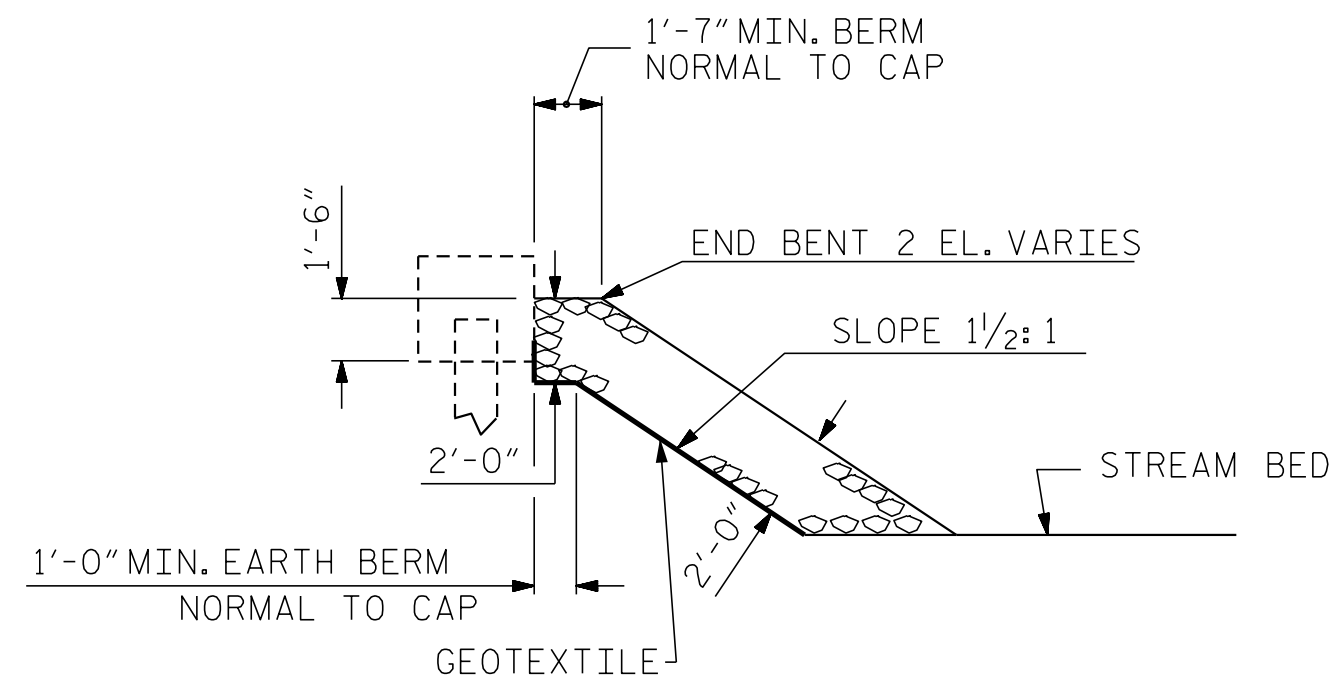
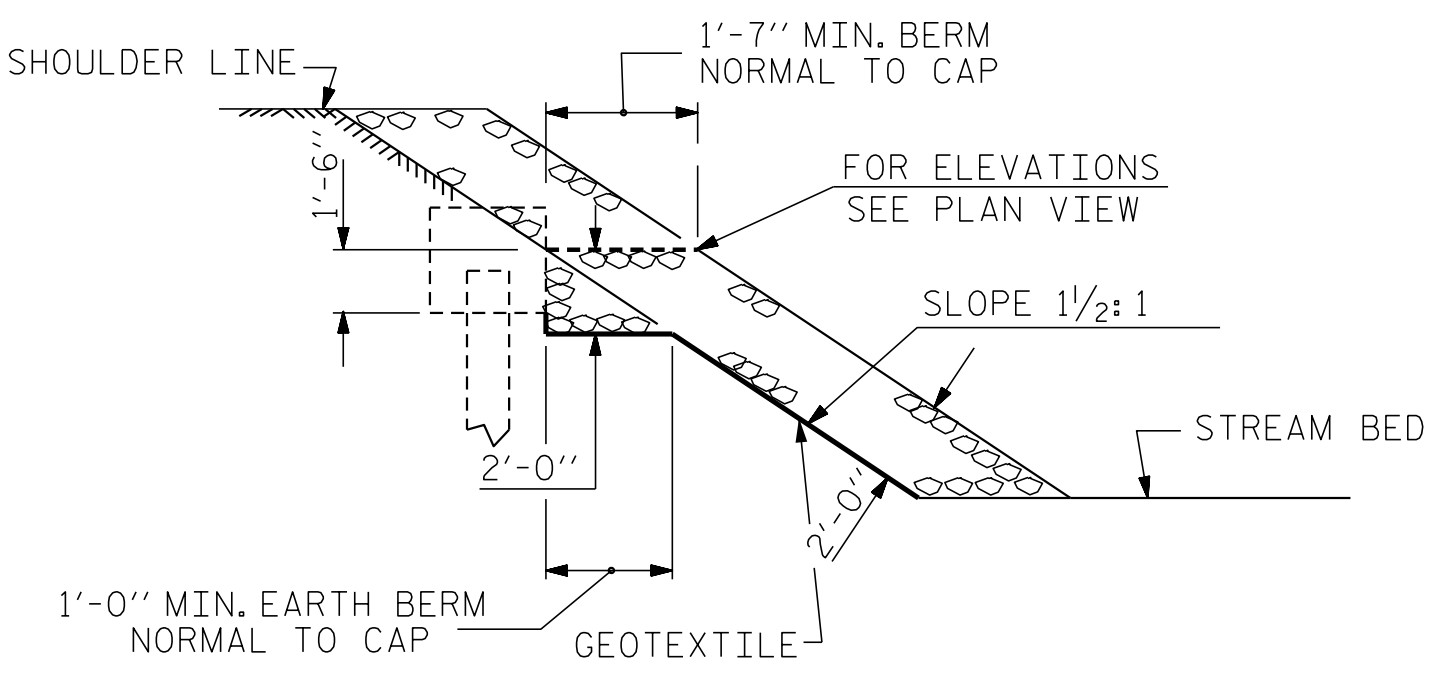
S-15

TOTAL SHEETS

18



ESTIMATED QUANTITIES		
BRIDGE @ STA. 14+32.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	60	65
END BENT 2	45	50



PROJECT NO. B-4775  
MACON COUNTY  
STATION: 14+32.00 -L-

ENGINEER OF RECORD

**SEAL**

14091  
2/1/2018  
ENGINEER  
CHARLES HUNT

DocuSigned by:  
Buck Charles Hunt  
2015C93075BA4EC...

**WETHERILL ENGINEERING**

1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
Bus: 919 851 8077  
Fax: 919 851 8107  
LICENSE NO. F-0377

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**RIP RAP DETAILS**

REVISIONS						SHEET NO. S-16
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			18


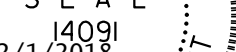
DRAWN BY : B.C. HUNT / MJS DATE : 1-2017  
CHECKED BY : G.M. GILLAND DATE : 2-2017

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

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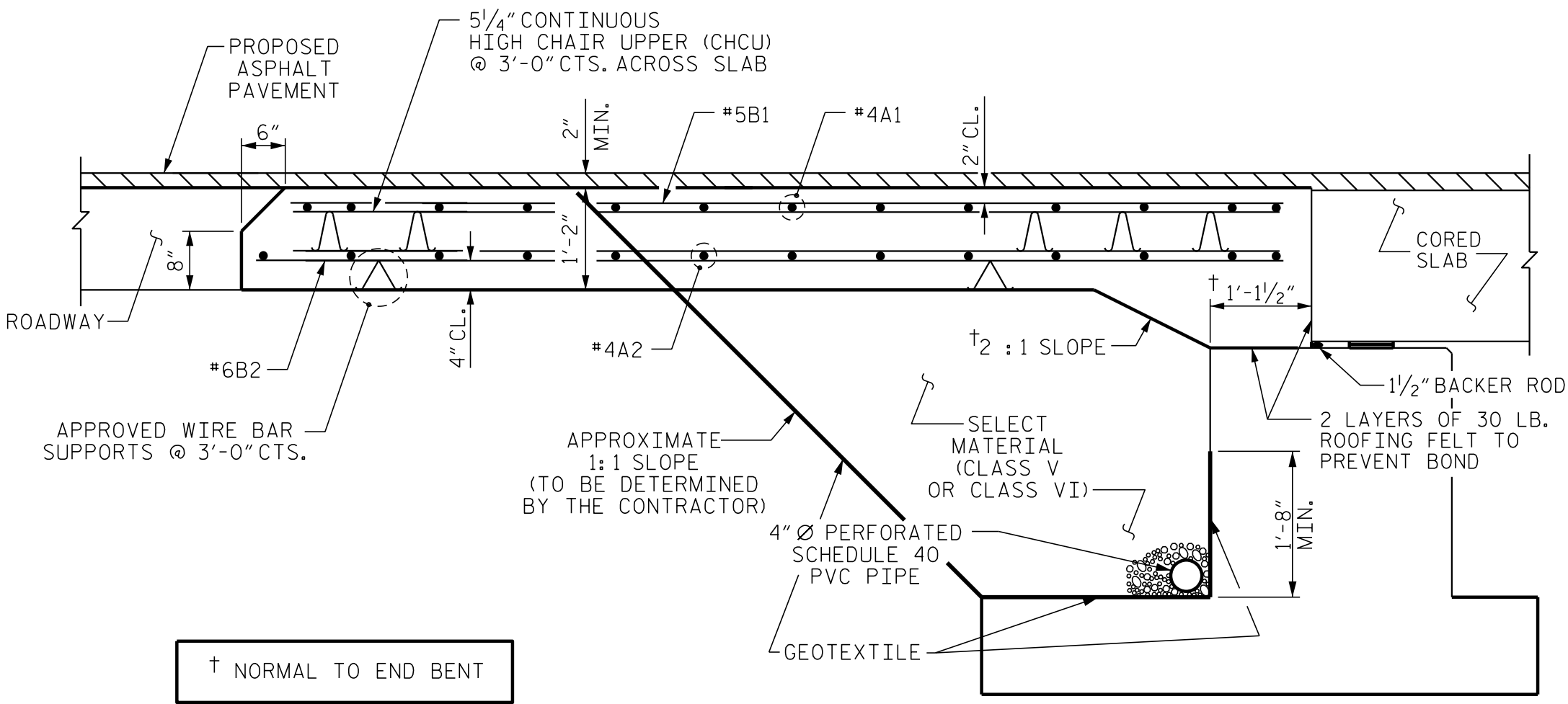




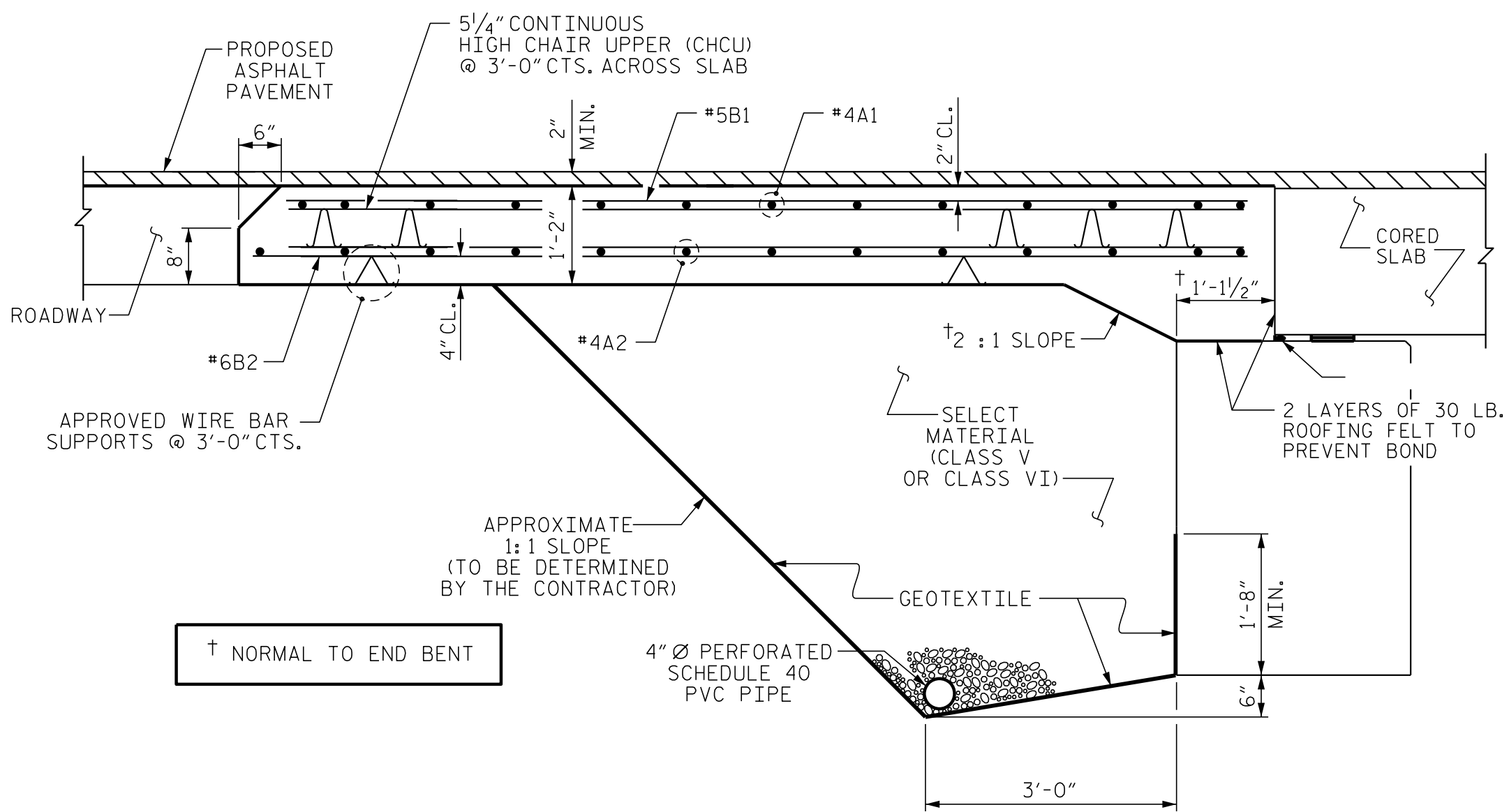
<p>ENGINEER OF RECORD</p> <div style="text-align: center;">  </div> <p>Decommissioned by  <i>Erick Charles Hunt</i>  <small>2F1C83075BAEC.</small></p> <div style="text-align: center;">  </div> <p>1223 Jones Franklin Rd.          Raleigh, N.C. 27606          Bus: 919 851 8077          Fax: 919 851 6107          LICENSE NO. F-0377</p>	<p style="text-align: center;">STATE OF NORTH CAROLINA</p> <p style="text-align: center;">DEPARTMENT OF TRANSPORTATION</p> <p style="text-align: center;">RALEIGH</p> <p style="text-align: center; font-size: 2em; font-weight: bold;">BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="6" style="text-align: center;">REVISIONS</th> <th style="text-align: center;">SHEET NO.</th> </tr> <tr> <th style="width: 10%;">NO.</th> <th style="width: 10%;">BY:</th> <th style="width: 20%;">DATE:</th> <th style="width: 10%;">NO.</th> <th style="width: 10%;">BY:</th> <th style="width: 20%;">DATE:</th> <th rowspan="3" style="text-align: center; vertical-align: middle;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">                     TOTAL SHEETS 18                 </div> </th> </tr> <tr> <td style="text-align: center;">1</td> <td></td> <td></td> <td style="text-align: center;">3</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td></td> <td></td> <td style="text-align: center;">4</td> <td></td> <td></td> </tr> </table>	REVISIONS						SHEET NO.	NO.	BY:	DATE:	NO.	BY:	DATE:	<div style="border: 1px solid black; padding: 5px; text-align: center;">                     TOTAL SHEETS 18                 </div>	1			3			2			4		
REVISIONS						SHEET NO.																					
NO.	BY:	DATE:	NO.	BY:	DATE:	<div style="border: 1px solid black; padding: 5px; text-align: center;">                     TOTAL SHEETS 18                 </div>																					
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DRAWN BY : J. PENDERGRAFT DATE : 1-17  
CHECKED BY : B.C. HUNT DATE : 1-17



SECTION THRU SLAB @ END BENT 1



SECTION THRU SLAB @ END BENT 2

(TYPE II - MODIFIED APPROACH FILL)

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

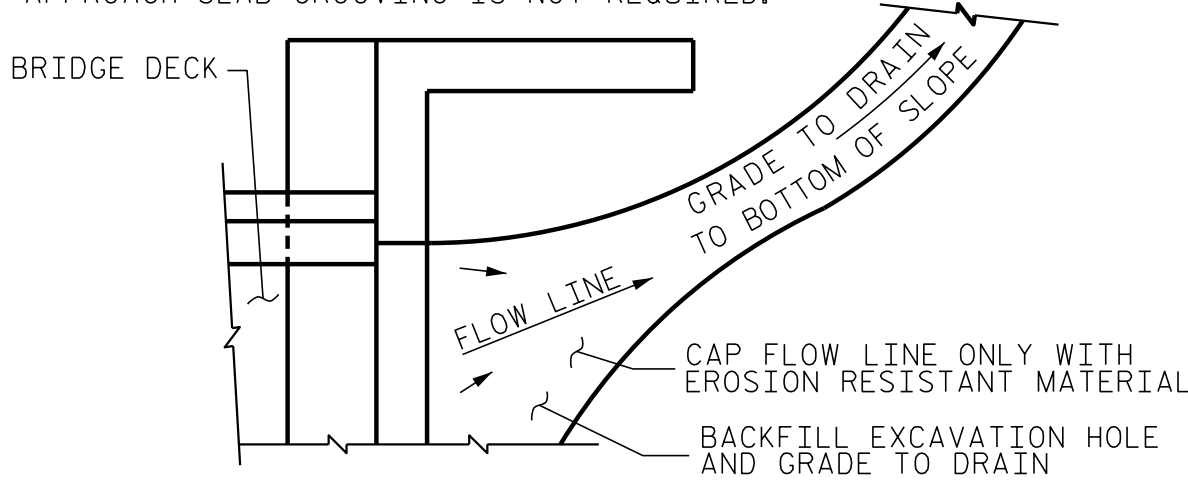
SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

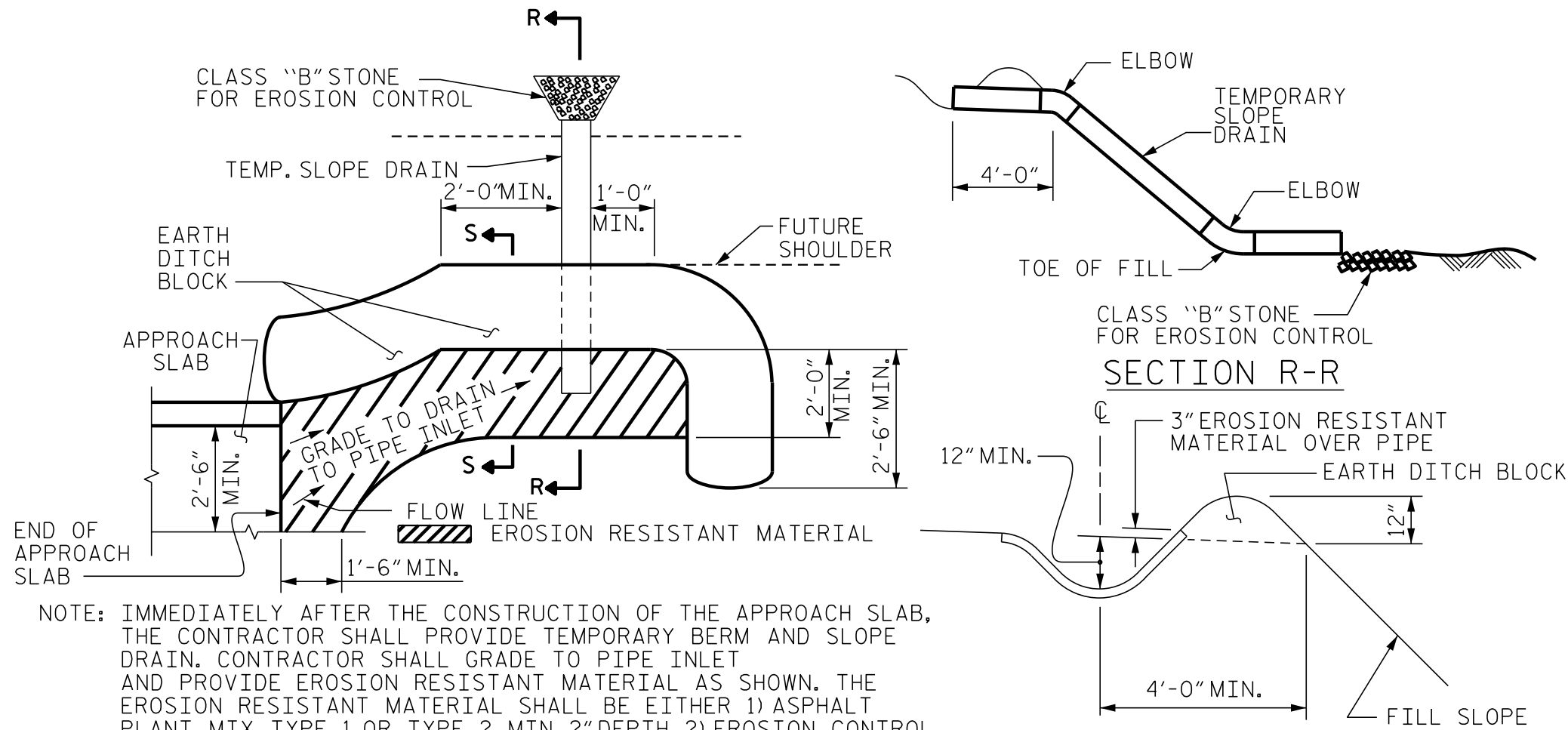
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

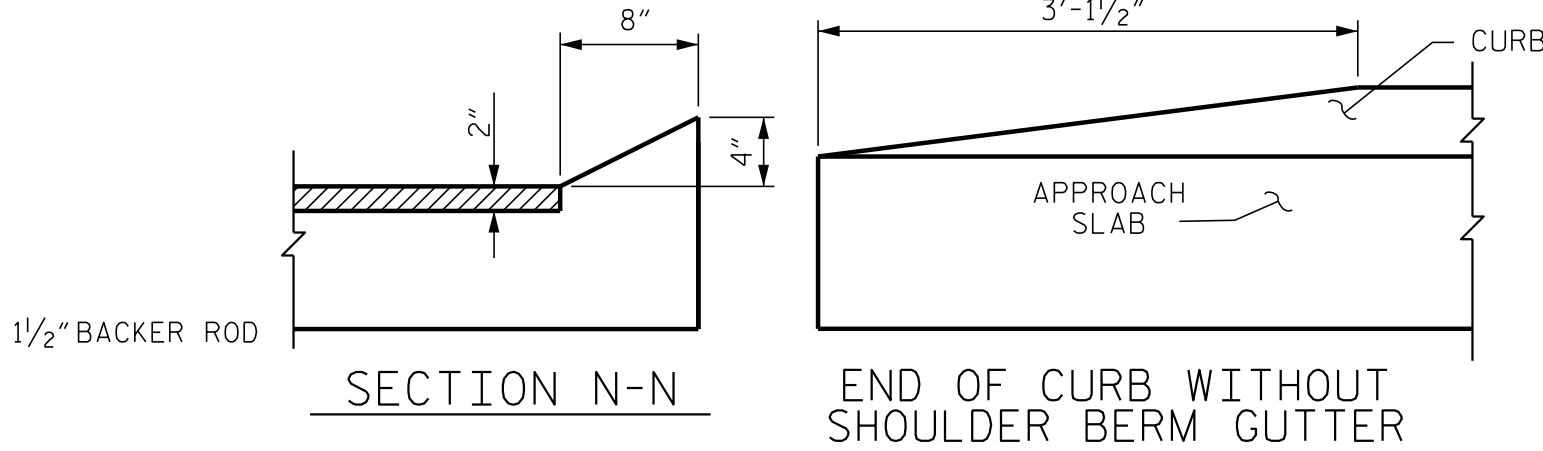
TEMPORARY DRAINAGE DETAIL



PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



CURB DETAILS

SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

BILL OF MATERIAL					
APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	26	#4	STR	15'-7"	271
A2	26	#4	STR	15'-5"	268
* B1	104	#5	STR	8'-0"	868
B2	104	#6	STR	7'-8"	1198
REINFORCING STEEL				LBS.	1466
* EPOXY COATED REINFORCING STEEL				LBS.	1139
CLASS AA CONCRETE				C. Y.	15.0
APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A3	13	#4	STR	26'-8"	232
A4	13	#4	STR	26'-8"	232
* B3	52	#5	STR	11'-1"	601
B4	52	#6	STR	11'-7"	905
REINFORCING STEEL				LBS.	1137
* EPOXY COATED REINFORCING STEEL				LBS.	833
CLASS AA CONCRETE				C. Y.	15.0

PROJECT NO. B-4775  
MACON COUNTY  
STATION: 14+32.00 -L-

ENGINEER OF RECORD

**NORTH CAROLINA PROFESSIONAL SEAL**  
14091  
2/21/2018  
ENGINEER  
CHARLES HUNT

Disciplined by: **Eric Charles Hunt**  
2P1503817584EC

**ETHERILL ENGINEERING**

1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
Bus: 919 851 8077  
Fax: 919 851 8107  
LICENSE NO. F-0377

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER)					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					18



STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	- - - - -	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	- - - - -	SEE PLANS
IMPACT ALLOWANCE	- - - - -	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	- -	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	- -	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	- -	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	- - -	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	- - - - -	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	- - - - -	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	- - -	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	- - - -	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	- - - -	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1 1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 3/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16" INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN